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388

ANNUAL REPORT

OF THE

Secretary of Internal Affairs

OF THE

COMMONWEALTH OF PENNSYLVANIA

PART III.

INDUSTRIAL STATISTICS.

VOL. VII

1878-9.

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REPORT

OF THE

BUREAU OF INDUSTRIAL STATISTICS.

DEPARTMENT OF INTERNAL AFFAIRS,
BUREAU OF INDUSTRIAL STATISTICS,
HARRISBURG, *March 1, 1880.*

Honorable A. K. DUNKLE,

Secretary of Internal Affairs:

SIR: I herewith have the honor to present the seventh annual report of the Bureau of Industrial Statistics, and the first under your official term as Secretary of Internal Affairs.

This report is far from being complete; but with the facilities afforded to perform the labor assigned to the Bureau, it is the best that could be done. In common with my predecessors, I can but express the folly of continuing the Bureau without adequate means appropriated for the purpose of making its inquiries thorough and comprehensive. Those of our citizens who clamored for its creation, and obtained from our Legislature the law creating it, certainly contemplated that its usefulness would be efficient in laying before the public such facts and statistics in relation to the producing classes, as would allay the wailings of the blatant demagogue, and exact from the over-selfish and intolerant that degree of justice inimical to the common welfare and interests of all citizens. The Legislatures of the past, year after year, have been importuned to alleviate by law avowed oppressions of many of its citizens: while as many, with equal candor, would proclaim that the importunities were groundless, and that their fellows were born to live and die with an eternal whine of complaint upon their lips. It was thus with matters relating to the ventilation of mines throughout the anthracite regions; and while the subject attracted but limited attention, and the General Assembly continued to halt in their action, the horrible catastrophe at Avondale burst upon us; and after its sad victims were carried away, amid the cry of orphans and the wail of defenseless widows, a progressive step was taken, and the present laws of ventilation were ingrafted upon our statute-books. Following in their wake, the miners of the bituminous regions came knock-

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ing at the doors of legislation, asking that laws be enacted whereby pure air might be instilled into their working chambers, noxious gasses eradicated, and proper drainage be established, and thus the condition of their lives be ameliorated and extended. To the mind of the operator, no such law was required, and in their protestations, they declared that their mines were so situated that pure air was abundant, and hence all law would be an incumbrance upon their business, and detrimental to their interests. In this dilemma, the Legislature passed the joint resolutions, approved, March 16, 1874, providing for the appointment, by the Governor, of three commissioners to investigate the condition of the bituminous coal mines in this Commonwealth. The commissioners appointed in pursuance of the aforesaid resolutions, were representatives of both miners and operator, employer and employed. Their labors extended throughout the entire bituminous region, developing a state of affairs in the ventilation and drainage of mines truly alarming. In their description of the condition of a mine in Bedford county, they conclude that "taken as a whole, a place more dangerous would be hard to find, or one more likely at any moment to end in the destruction of the lives of all engaged in it." As a result of *investigation*, the commission furnished facts conclusivly showing, that the necessities existed in the bituminous region similar to those that led to the adoption of a law compelling ventilation and inspection in the anthracite region, and hence recommended the passage of a law designed to accomplish that end. The Legislature of 1877, in pursuance of said recommendation, passed the act which is now enforced, thus exemplifying the necessity of producing established facts, substantiated by personal inquiry, in matters involving the life, health, and social status of the Commonwealth's citizens. No subject that is vital to public interest, and designs to promote the welfare of any class, to the possible detriment of another, or that contemplates to eradicate an imaginary or real injustice, supposed to be practiced by the few, to the oppression of the many, can neither be abolished or dethroned, without first an impartial investigation, and consequent presentation of facts as developed. The ability of the wage worker to live and support his family; the manner and character of payments for labor performed; the hours employed; the tenement in which, perchance, necessity compels him to dwell in; the competition, if any, of prison labor, and many kindred subjects; to say nothing of the importance of giving accurate statistics of the vast varied and growing industries of our State, naturally come within the design and purposes of the creation of this Bureau. But if its operation is to be confined simply to the preparation of blanks, and with the aid of the postal service, transmitted to proper parties, by them to be filled out and then returned, its usefulness will be of little avail, and its results very unsatisfactory. Blanks received by many corporations who mine or manufacture, as well as individuals, in many instances receive no attention, but are quietly laid aside, and never returned. Many employés, upon receipt of a blank or circular, fail to fill them, owing to the possibility

of having their names exposed, and a consequent fear of losing employment for their impertinence, and thus, too, they are never returned. That there can be no doubt on this point is evidenced from the fact, that nearly all who have made returns include the request and admonition not to disclose their name, notwithstanding the assurance given on the blank itself, that no names will be published.

For the purpose of preserving and protecting the health of a city, boards of health are authorized by law, and the sanitary condition of the city is entrusted to its care and keeping. The trust and duties imposed can only be faithfully performed by personal inspection, and to that end individuals are appointed. No amount of blank circulars sent, would, in all probability, bring information as to the cause and location of numerous substances that produce disease, pestilence, and death; but the daily tour of the inspectors, brings its cause and location to the notice of the board, and they attend to its speedy removal.

The act of May, 1874, authorizes, among other things, the Bureau to "impartially inquire into the relations of capital and labor, in their bearings upon the social, educational, and industrial welfare of all classes of working people, and to offer practical suggestions for the improvement of the same; to collect, compile, and publish such statistics in regard to the wages of labor, and the social condition of the laboring classes as may enable the people of the State, to judge how far legislation can be invoked to correct existing evils." The duties and powers thus prescribed are important, and certainly cannot be correctly and intelligently performed, without individual effort through personal visitation. The visitations however, cannot be made, nor the effort given without means to defray the expenses thereof, unless officials would expend their salaries in that direction, which I presume is neither desired or expected. The duties prescribed of making or offering "practical suggestions" cannot be performed unless the work is thoroughly done, the ability to do which is measured by the means afforded.

Industrial bureaus are the offspring of repeated and urgent appeals made particularly by the workingmen of the country. In August, 1866, the first national convention of workingmen, irrespective of occupation, was held in the city of Baltimore, with a large representation from many of the States. Among the various resolutions adopted was one asking Congress, to establish at Washington, a National Bureau of Labor Statistics, which request has been continually repeated since by local and general conventions held in various parts of the country. The claim for such a bureau, was, and is, based on the assertion that by no existing data can the statesman learn the condition of the vast producing interests of the country, and that our lawmakers cannot legislate intelligently in the interest of producers, as represented by both employers and employés, when their knowledge of such may be confined to a county or, at best to the limits of a State. Outside of the statistics gathered by boards of trade and chambers of commerce, whose efforts are confined to large cities, and

whose reports do not touch upon the wages or condition of workingmen, there were no efforts made, either local, State, or national, to ascertain the true condition, the necessities, or the wants of millions engaged in productive industry. Such a bureau, thoroughly organized and issuing reports annually or oftener, "would not only present to the lawmakers, full and accurate statements of productive industry that would prove invaluable in the legislation of the country, but such information would, in the future, prevent many of the unfortunate investments of capital (just as the signal service prevents great losses to the merchant marine,) by giving prompt information as to when it is, and when it is not, safe to venture upon such investments. The report of such a bureau would also go far to regulate the overcrowding of cities, and would assist in taking thousands therefrom to the unimproved acres of the West and South, by giving the information officially that can now only be had from parties interested in the sale of lands, and whose information is seldom or never reliable."

In 1871 an effort was made in the lower House of Congress, by bill to organize a national bureau. In lieu thereof, however, a bill was framed authorizing the appointment of a commission to examine the condition of labor. Although passing the lower House, it failed to pass the Senate. Efforts were subsequently made, in different years, with the view of establishing a national bureau, but failed. The Congress of 1877–8 created a committee to investigate the condition of labor. It also authorized the following:

"The congressional committee earnestly request the coöperation of the public in all sections of the country in obtaining information to aid in a practical solution of the important questions submitted to it. It especially invited suggestions from representative men in all departments of business. It proposed the following questions to employers of labor throughout the country:

First. What were the selling prices of your product in 1860, and in each subsequent year down to 1878, inclusive?

Second. What were the wages paid by you in each of these years for labor employed?

Third. Where the persons furnishing information are willing to do so, the committee invites them to state the percentage of profits made by them in each of these years upon the capital employed in their business.

Fourth. What were the wholesale and retail prices of the leading articles of family consumption during each of these years in your vicinity?

Fifth. What is the difference, if any, between the rents of tenements occupied by operatives in the years 1860 and 1878 in your vicinity?

Sixth. What was the comparative amount of the products of your business in quantity and value in the years 1860 and 1878?

Seventh. State the comparative steadiness of employment of operatives between the years 1860 and 1878, inclusive.

The committee invited suggestions from employers and employed, as to

the extent and cause of the present depression of business, and as to any special federal legislation which, in their opinion, would tend to relieve the same."

A vast amount of testimony was taken in various sections of the country, given by men in every walk of life. The testimony has since been published, unaccompanied by any special report so far, by the committee. The published testimony, however, gives food for the reflection of statesmen, economists, employer, and employé.

The following bill is now before Congress, having been introduced by the Honorable Thomas L. Young, of Ohio:

A Bill to Create a Department of Manufactures, Mechanics, and Mines.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That there shall be at the seat of Government a department to be known as the Department of Manufactures, Mechanics, and Mines, the duties of which shall be the collection of and diffusion, through reports made not less often than once in each year, of information, to be as far as possible in the shape of statistics, of the manufacturing, mechanical, and mining industries of the United States.

SEC. 2. The department shall be under the charge and control of a person to be known as the Commissioner of Manufactures, Mechanics, and Mines, who shall be appointed by the President of the United States, by and with the advice and consent of the Senate, who shall hold his office for a term of four years, and shall receive a salary of $4,000 per year.

SEC. 3. The Commissioner shall have authority to appoint one chief clerk, at a salary of $2,500 per year, and such other clerks as shall be necessary to perform the duties imposed on the department by this act. The salaries of said clerks in no case to exceed the sum of $1,500 per year.

SEC. 4. The Commissioner shall give bond to the Secretary of the Treasury in the sum of $10,000, and the chief clerk in the sum of $5,000, conditional upon the faithful performance of duty.

SEC. 5. It shall be the special duty of the department to secure information, and report as to the condition of the producing classes as represented by wage-workers, especially as to their wages and cost of living as compared with the value of their productions. And it shall further be the duty of the department to investigate as to and report on the moral, social, educational, and sanitary condition of laborers, and as to the causes which may operate injuriously upon these conditions.

SEC. 6. The department shall, so far as is possible, secure statistics of the leading manufactures of the several States, amount of capital invested, value of raw material used per year, wages paid, value of product, and the number of persons employed, dividing them according to age and sex.

SEC. 7. The department shall also secure information and statistics as to the location of the mineral lands of the United States, their process of development, the kind and quality of such minerals, the number of persons

employed in securing such minerals for use, the wages paid them, the average number of days employed in each year, the quantities of such minerals produced annually, and the value thereof.

SEC. 8. A general report shall be made by the department, on or before the first day of February in each year, to the President and the Congress of the United States, and it shall make special reports whenever called upon by either House of Congress.

The first State that led off in the formation of a bureau was Massachusetts, in pursuance of the following resolution:

"*Resolved*, That the Governor, with the advice and consent of the Council, is hereby authorized to appoint, as soon after the passage of this resolve as may be, and thereafter biennially, in the month of May, some suitable person to act as chief, who shall have power to appoint a deputy, and said chief, with his deputy, shall constitute a bureau of statistics, with headquarters in the State-house.

The duties of such bureau shall be to collect, assort, systematize, and present, in annual reports to the Legislature, on or before the first day of March in each year, statistical details relating to all departments of labor in the Commonwealth, especially in its relation to the commercial, industrial, social, educational, and sanitary condition of the laboring classes, and to the permanent prosperity of the productive industry of the Commonwealth.

That said bureau shall have power to send for persons and papers, to examine witnesses under oath; and such witnesses shall be summoned in the same manner and paid the same fees as witnesses before the superior courts of the Commonwealth."

There have been ten reports of this bureau issued, containing information of an invaluable character. So steadily has it grown in importance, that it was entrusted, in 1875, with the management of the State census, and as a result, a volume containing the minutest details was issued. For purposes of temporary assistance and transportation, the State has annually appropriated from two to five thousand dollars. The largest amounts being appropriated the first years of its existence, its diminution being as gradual as the efficiency of the Bureau became potent.

In 1871, Connecticut created a bureau, but amid disputes over its labors, its usefulness was destroyed, and subsequently abolished.

After several attempts, Ohio passed a law in 1877 creating a bureau, with an appropriation of five hundred dollars for traveling expenses.

New Jersey in 1877–8, by law created a Bureau of Labor Statistics, the first report of which was issued last year.

Indiana has a Bureau of Statistics and Geology. Missouri also, last year, followed in the same wake, and thus it is quite probable State after State will create bureaus, entrusted with the task of giving facts and statistics upon questions that, at intervals, convulse society and government almost to their foundation, and which are subjects of study by the leading minds of our day and generation.

That Pennsylvania should have taken steps, years ago, in this direction, is but in consonance with the progressive character of her people; but that its Legislature should continually stand preëminent in failing to appropriate funds to enable the bureau to be of some benefit, is a question that must rest with the wisdom of the body itself.

I cannot convey the importance of this matter in language more forcible than that of my predecessors. In the first report, 1873, the Commissioner says: "When the amount and character of the work committed to the Bureau is comprehended, (if it ever is,) the extreme inadequacy of this appropriation will be startlingly manifest; and when, likewise, the value in usefulness of such a work, properly sustained and thoroughly executed, the arrangement and tabularization of all the stupendous industries of the State, its vast developed and undeveloped mineral and other resources set forth in clear, orderly, and authoritative tables, with the progress made, noted from year to year, giving the best and safest information for, and most persuasive invitation to, investors of capital at home and abroad, is comprehended, (if it ever is;) and when, again, the value of the work as a guide to legislation, securing our lawgivers against errors and blunders in that direction, by furnishing them with the light of real facts and sure knowledge, that no chicanery, misrepresentation, or conspiracy can befog or darken, is comprehended, (if it ever is,) the unwisdom of such inadequate appropriations, where the investment is so certain to give such large returns for the outlay, will be so manifest that its repetition will be impossible."

In the last report, the chief says: "It certainly does not reflect a high degree of intelligence on the part of our legislators when they refuse or neglect to make reasonable and proper appropriations for the specific use of this Bureau. Large sums of money for other purposes are annually appropriated, the object of which in no wise compare in point of importance to the one in question. In mineral and productive wealth, the first State of the Union, the vast resources and boundless wealth of Pennsylvania are comparatively unknown, or, at best, poorly understood. The reason is apparent. No provision has been made by law for the proper collection of statistics. Whatever information is contained in the reports has been gleaned from the voluntary contribution of correspondents throughout the State."

Near the close of the last session of the Legislature, the Finance Committee of the Senate was induced to provide in the general appropriation bill for an appropriation of $3,000 for the use of the bureau; but it failed to pass the Senate. Had it passed both branches, and thus enabled us to engage, for only one or two months, proper canvassers or temporary attachés of the Bureau, distributed throughout the Commonwealth, this report would be much more elaborate, useful, and reliable. Blanks used were in the main similar to those used by our predecessors, but our short experience demonstrates that further improvements in that particular are necessary, as many questions might, with propriety, be omitted, some added,

but the whole remodeled, so as to greatly abbreviate and condense in a comprehensive manner the subjeets whieh they treat of. Espeeially should this be done with the report of the mine inspeetors, as at present it is far to voluminous, oecupying a very large portion of the report, with matter that eould be readily condensed without detracting from its value. Attention will be given to that portion of the Bureau duties during the present year.

Many subjects that naturally come within the province of the Bureau have not been touched upon, as their importanee and time allotted would not admit of it. It is hoped, however, to make them the subjects of future inquiry and report.

The Bureau is under obligations to Joseph D. Weeks, B. F. Jones, Joseph Bishop, James M. Swank, James Dobson, John O. Edwards, Esquires, and others for their gratuitous aid, as well as to the clerks thereof.

M. S. HUMPHREYS,
Chief of Bureau.

REPORT OF BUREAU.

Upon assuming charge of the Bureau, the importance of being placed in communication with the varied industries of the Commonwealth was at once made manifest. Those enumerated in former reports were of course accessible, and made use of; but, in order, if possible, to secure a still greater number, the following circular was addressed to the office of the commissioners of the several counties:

To the Commissioners of . . . . . County:

GENTLEMEN: Will you please cause the accompanying blank, enumerating the various industries of your county, to be filled out from the assessment books, and return the same to this office? The information is important, and is desired for immediate use by this Bureau. You will therefore confer a great favor by furnishing it with as little delay as possible."

Responses to the foregoing were received from the counties, as follows: Allegheny, Armstrong, Beaver, Bedford, Berks, Blair, Bradford, Bucks, Butler, Cambria, Cameron, Carbon, Centre, Chester, Clarion, Clearfield, Clinton, Columbia, Crawford, Cumberland, Dauphin, Delaware, Elk, Erie, Fayette, Forest, Franklin, Fulton, Huntingdon, Indiana, Lackawanna, Lancaster, Lawrence, Lebanon, Lehigh, Luzerne, Lycoming, Mercer, Mifflin, Monroe, Montgomery, Montour, Northampton, Northumberland, Perry, Pike, Potter, Schuylkill, Snyder, Somerset, Sullivan, Susquehanna, Tioga, Union, Warren, Washington, Wyoming, and York.

In order to procure a larger number of wage-workers, with whom the Bureau could correspond, with a view of obtaining intelligence upon all matters relating to their welfare and condition, seven hundred and twenty-five of the following circulars were addressed to the aldermen and justices of the peace throughout the State, with the belief, that owing to the limited number of voters residing within their respective districts, they were thus conversant with their immediate neighborhood, and could furnish the names of those competent to give reliable information:

Circular.

DEAR SIR: The duties of this Bureau, prescribed by act of Assembly approved the 11th day of May, 1874, "shall be to impartially inquire into the relations of capital and labor in their bearings upon the social, educational, and industrial welfare of all classes of working people, and to offer practical suggestions for the improvement of the same."

"The said Bureau shall further collect, compile, and publish such statistics in regard to the wages of labor and the social condition of the laboring classes as may enable the people of the State to judge how far legislation can be invoked to correct existing evils,"

In order to carry out the provisions of said act, it will be necessary for the Bureau to have the names and post office addresses of a number of intelligent mechanics and laborers in the several counties of the State. You would greatly oblige me by sending the names and address of a few residents of your township (ward or borough) who at the present time, are working for wages in the employ of others. The list to include day laborers, railroad employés, carpenters, blacksmiths, or employés at other mechanical occupations."

Of the seven hundred and twenty-five mailed, there were returned one hundred and ninety, principally from the interior portions of the State, and containing the addresses of over seven thousand citizens.

The following table shows the number of blanks issued from this Bureau, dating from May 1 to December 31, 1879, and the number returned:

INDUSTRIES.

NAME.	Blanks issued.	Blanks returned.	NAME.	Blanks issued.	Blanks returned.
Agricultural implements,	11	3	Locks,	1	1
Bridge building, (iron,)	7	3	Locomotive works,	5	3
Boots and shoes,	19	3	Lumber,	453	180
Carpets,	27	4	Ore, iron,	5	3
Carriages and wagons,	21	8	Paper manufactories,	28	9
Cars,	23	5	Potteries,	9	5
Coal mining, anthracite,	247	149	Printing and binding,	4	1
bituminous,	279	96	Railroads,	148	91
coke,*	55		Sash and doors,	15	7
Cotton manufactories,	82	24	Silk manufactories,	2	2
Fire brick,	13	3	Slate quarries,	9	5
Furniture,	20	7	Sugar refineries,	3	0
Glass manufactories,	74	26	Steel, axes, saws, &c.,	12	8
Hosiery,	8	3	files,	3	1
Iron blast furnaces,	178	87	shovels,	6	1
bolt and nut works,	9	1	springs,	4	3
boiler works,	29	4	Bessemer works,	5	1
bloomeries,	46	14	crucible, cast, &c.,	14	6
foundries,	232	96	miscellaneous,	2	
machine & engine shops,	152	33	castings,	3	
rolling-mills,	141	66	manipulating,	2	1
tube works,	15	3	Tanneries,	470	182
hinge factories,	2		Whips,	1	
chains,	5	2	Woolen-mills,	78	43
ship building,	3	1	Worsted yarns,	5	3

*Coke classed with bituminous coal.

OCCUPATIONS.

NAME.	Number issued.	Number returned.
Agricultural implements,	1	
Ax makers,	1	
Blacksmiths,	41	15
Boiler makers,	14	1
Brass finishers,	2	1
Bricklayers,	11	5
Cabinet makers,	10	7
Car builders,	4	3
Carriage builders,	1	
Carriage trimmers,	7	2
Carders and spinners,	10	2
Carpenters,	30	12
Carpet weavers,	10	6
Caulkers,	2	2
Chair makers,	2	2
Coach painters,	3	1
Coach smiths,	2	1
Coke drawer,	1	
Coopers,	10	6
Crucible repairer,	1	
Dyers,	3	2
Engineers,	17	12
File cutter,	1	
Firemen,	12	7
Glass blower,	14	6
Glass cutter,	2	1
Glass workers,	5	2
Iron and steel workers—		
Blast furnace employés,	10	9
Puddlers,	73	35
Helpers,	14	5
Heaters,	24	10
Rollers,	56	24
Roughers,	1	1
Catchers,	2	2
Straightners,	1	1
Roll turners,	3	1
Shearsmen,	3	1
Sheet marker,	1	
Forgemen,	10	5
Hammermen,	5	3
Tinsman,	1	1
Refiner,	1	1
Not designated,	12	2
Nailers,	26	9
Bolt maker,	1	1
Steel melters, &c.,	17	8
Wire drawers,	3	2
Lime burners,	5	2
Lumbermen,	6	
Machinists,	23	8
Masons,	13	9
Millwrights,	5	4
Miners coal,	371	186
Moulders,	70	25
Painters,	16	10
Paper hangers,	2	
Pattern makers,	5	2
Planing mill employés,	5	2
Plasterers,	13	7
Plumbers,	5	1
Pipe welders,	1	1
Printers,	19	7
Quarrymen,	3	3
Railroad employés,	29	10
Saw maker,	1	
Sawyers,	11	6
Shoemakers,	26	14
Shovel makers,	1	1
Silk factory,	1	
Slaters,	4	1
Stone cutters,	9	4
Tailors,	14	7
Tanners,	24	14
Tinners,	6	3
Wagon makers,	7	3
Weavers, cotton,	10	2
Wheelwrights,	5	2
Wool sorter,	1	

COAL ANTHRACITE.

Outside of this State the mining of anthracite coal is carried upon so small a scale, that nowhere is there a coal breaker except in the northeast part of Pennsylvania. Of the sixty-seven counties of Pennsylvania, twenty-five contain no coal. Practically there is no coal east or north of the State. The close proximity of Pennsylvania to the Eastern States, where scarcely any coal exists, and the rapid methods of transportation, has given the anthracite coal regions of the State, an extensive and established market, in which no country can successfully compete.

From the first discovery of anthracite coal down to 1808, it was only used by smiths or in forges. In the latter year Judge Fell, of Wilkes-Barre, successfully used it in a grate. From this date forward, its use became gradually more general for domestic purposes, in all places where it was mined or could be transported. The use of anthracite coal for generating steam, was attempted in Philadelphia very early in the present century, but it is stated that its use was not successful until 1825, when the proprietors of the rolling-mill at Phœnixville used it under their boilers.

It was successfully used for puddling iron at the same works about 1827. Iron ore was successfully smelted, both at Mauch Chunk and at Pottsville, between the years 1837 and 1839. Its use in promoting these industries being established, its value and production steadily increased, developing a network of collieries, breakers, railroads, and canals, that places Pennsylvania preëminently as the greatest anthracite coal producing field in the world.

An elaborate historical sketch of the discovery, rise, and progress of the Pennsylvania coal trade, would require more space than could be allowed in the pages of a single report.

The following paper, prepared by P. W. Sheafer—from P. W. Sheafer's Map of the Anthracite Collieries of Pennsylvania, published in 1858—at the request of Hon. Andrew Englebert, of Wiconisco, Dauphin county, giving a historical account of the early development of anthracite coal in Dauphin county, has been presented to the Bureau, and herewith given:

Statistics of Anthracite Coal.

1768. Anthracite coal first used in Wyoming valley, by Obadiah Gore, blacksmith.

1775-6. Several boat loads of anthracite coal were sent from Wyoming down the Susquehanna, and thence hauled to Carlisle barracks, to manufacture arms for the Government.

1790. Coal first known in Schuylkill county.

1794. Blacksmiths used it in Schuylkill county.

1808. Used in grates by Judge Fell of Wilkes-Barre.
1812. Colonel George Shoemaker hauled nine wagon loads of coal from Pottsville to Philadelphia, and was obliged to give away the coal.
1814. Charles Miner sent an ark load, twenty-four tons, of coal from Mauch Chunk, via the Lehigh and Delaware, to Philadelphia.
1815. Schuylkill navigation commenced.
1820. Three hundred and sixty-five tons of coal shipped by the Lehigh canal. He also shows the first shipments of anthracite coal over the several other avenues to market.
1822. The Schuylkill canal shipped fourteen hundred and eighty tons.
1829. The Lehigh and Susquehanna railroad shipped one thousand tons.
1833. The Union canal shipped thirty-five hundred tons.
1834. The North Branch canal shipped eighty-nine hundred and twenty-three tons.
1834. The Lykens Valley railroad shipped forty-one hundred and eighty tons.

You will notice that the first railroad in the United States to carry anthracite coal was the Lehigh Navigation Company's gravity railroad, in 1820. Then the Schuylkill county branch roads to the Schuylkill canal, in 1822, and third was the Lehigh and Susquehanna railroad; next and fourth in order, and first in Dauphin county, was the Lykens Valley railroad. The Wiconisco Coal Company (named after the Wiconisco creek, in the northeastern portion of Dauphin county,) was organized in 1831, composed of six members: Simon Gratz, Samuel Richards, George H. Thompson, Charles Rockland Thompson, all of Philadelphia, and Henry Shimer and Henry Sheafer, both of Dauphin county, Pennsylvania.

They began work at opening their mines by drifts in the gap at Bear creek, a tributary of Wiconisco creek, and sold coal in the vicinity in 1832. The first miners were three Englishmen: James Todoff, John Brown, and William Hall, who came in from Schuylkill county.

The Lykens Valley railroad was located by Mr. Ashmoin, an English civil engineer, and extended from the mines in Bear Gap, sixteen miles, to the Susquehanna river, along the north foot of Berry's mountain. This road was constructed under the direction of John Paul, civil engineer, Henry Sheafer, superintendent, and Simon Sallade, director. The road was completed, and began transporting coal in 1834 by horse power, on a flat strip rail. A number of ark loads of coal were shipped from Millersburg in March and April, 1834. Then the coal cars were boated across the Susquehanna, from the terminus of the railroad at Millersburg to Mt. Patrick, on the opposite side of the river, in Perry county. This site was formerly owned by Peter Ritner, brother of Governor Ritner. Here the Lykens Valley company had a set of chutes on the Pennsylvania canal, where they shipped their coal to market. The first boat load of Lykens Valley coal was sent on Saturday, April 19, 1834, by boat "76," forty-three tons, Captain C. Fannce, consigned to Thomas Borbridge, Columbia, Pennsylvania.

Shipments continued in this manner until 1845, when the railroad was worn out, and abandoned until 1848. Then a portion of the railroad was regraded, and all laid with a new "T" rail. The Wieoniseo eanal was built and shipments resumed in 1848, and have continued ever sinee. Up to and including 1858, the total shipment of eoal from the Lykens Valley mines, from the beginning, amounted to eight hundred and forty-eight thousand seven hundred and eighty one tons, and the grand total shipments on the Susquehanna were three millions two hundred and thirty-four thousand seven hundred and eighty-one tons, whieh included shipments of coal by the Union eanal and other avenues, as follows:

The Shamokin railroad was opened in 1839.

The Dauphin and Susquehanna in 1854.

The Trevorton railroad in 1855.

At this early day of the eoal trade, this portion of the eountry was wild, and seemed far removed in the woods. Lykens valley is the broad expanse, three to five miles in width, of fertile red shale soil between Mahantongo mountain on the north, and Berry's mountain on the south, with the Susquehanna river as its boundary on the west. Its eastern portion is a distance of twelve miles from the river, and is sub-divided into two smaller valleys, the main or northern one extending some ten miles east to the valley of the Mahanoy ereek. The south portion is named after its early settler, Williams, who built a grist-mill near Williamstown, also named after him.

This valley, hardly a mile in width, extends east from its junction with Lykens valley ten miles, with the Short mountain on the north, and Berry's mountain on the south, to a point where it coalesces with Clark's valley, the two headed off by Broad mountain, beyond Tower City. This Short, or coal mountain, is a prong of the southern anthracite eoal field, forming a narrow basin, (hardly more than a mile wide.) The southern side of the basin, or north dip, is the only one worked. It is now pierced at Tower City, where it is extensively worked by the Philadelphia and Reading Coal and Iron company, and again at Williamstown, by the Summit Braneh Coal Company, the lands of which two companies adjoin at the eounty line between Schuylkill and Dauphin, where a wilful wall of the Pennsylvania eompany and the Philadelphia and Reading Coal and Iron Company, prevents a junction, mueh to the annoyanee of the publie, who want a rail connection between the two eounties, adjoining the two rivers, the Sehuylkill on the east and the Susquehanna on the west. This mountain is again tapped at Bear gap, the original mines above referred to. The North mountain was penetrated by a tunnel directly north of the gap, but thus far has not been very productive of eoal. In fact what seems singular in this conneetion is, that only two beds, the very lowest in the series, are produetive here, only being further east, too small for working, while the great mammoth bed, the great productive bed of the eastern distriet is hardly known here. These two lower inter-conglomerates, one eight and the other four feet thick, are dissimilar from other anthraeite coals in their

lusterless appearance, and their cubic fracture shows its western approach to the semi-bituminous coals farther west. It is a free-burning red ash coal, but free from impurities, ready of ignition, and the most popular coal (especially for domestic purposes) of all the anthracites. The lands in the vicinity of the old mines were controlled by the following ownership: the western portion by Thomas P. Cope, a well-known merchant of Philadelphia; afterwards it became the lands of the Short Mountain Coal Company, controlled by Job R. Tyson, the son-in-law of Mr. Cope, a well known attorney of Philadelphia. J. Edgar Thompson, the famous president of the Pennsylvania Railroad Company, took an interest in said company, and had their first breaker built, under the direction of the writer, whose education in coal began at the old Lykens Valley mines. The lands covering Bear Gap and North Mountain were owned by the Wiconisco, afterwards the Lykens Valley Coal Company, of which Simon Gratz, a prominent merchant of Philadelphia, was the president and principal owner.

Adjoining said lands on the east, was the coal territory of Messrs. Elder & Haldeman, both prominent residents, and land owners of Harrisburg, Pennsylvania. These three bodies of land are now in the ownership of the Summit Branch Coal Company, controlled by the Pennsylvania Railroad Company.

The popularity of this coal, first opened by Henry Sheafer, led to the opening of the Short Mountain Coal Company's mines in 1854, after the sale of the Elder & Haldeman lands to the Summit Branch company. They extended a branch road eastward from the town of Lykens, where they penetrated the south side of the mountain by a tunnel, cutting coal in great perfection, and where they have mined, prepared, and shipped one thousand tons of coal per diem for several years in succession. The same large shipments are now being made just east of the Summit Branch mines, at the Brookside colliery of the Philadelphia and Reading Coal and Iron Company. The same beds of Lykens Valley coal, and the same coal in all its peculiarities, is now mined in Stony mountain, at the Kalmia colliery of Phillips & Sheafer, south of Tower City. All of the above collieries, except Kalmia, have sunk deep slopes under water level. The future of the Lykens Valley district must, ere many years, be transferred to the south dip, on the north side of the mountain, where the same bed lies intact for twelve miles, more or less, mostly below water level. Before another century begins, the active shipments of coal must come from that side, through the old works in the South mountain, or from independent collieries along the north foot of the North mountain, where railroads must be built; one leading west to the Susquehanna, and another east to the Schuylkill, through Klinger's gap, where the Philadelphia and Reading Coal and Iron Company have a large body of lands, and a site for a grand colliery above water level.

One familiar with the picture of Bear Gap and its wild surroundings in 1832, all forest, its lofty mountains and rushing streams, no work of the hands of man apparent, no sound but the roaring of the creeks; the streets of the town of Wiconisco, as located by Henry Sheafer, and those of Ly-

kens, by Isaac Ferree, senior, (an intelligent emigrant from Lancaster county,) lay dormant beneath the pines and oak leaves. Fifty years of earnest labor has sent millions of tons of coal from its long sealed tomb, to land and sea, building towns, railroads, canals, churches, and schools, and lighting and warming all the people with its cheerful glow. But few of the original parties who began this enterprise remain among us. It but remains for me to make this brief record of their work, at your special request, to be placed if deemed worthy, among the archives of our State.

The following table, by R. P. Rothwell, esquire, editor of *The Engineering and Mining Journal*, New York, shows the production of anthracite coal up to date, in tons of 2,240 pounds:

YEARS.	THE WYOMING REGION. Luzerne and Sullivan counties.		THE LEHIGH REGION. Carbon, Columbia, and Luzerne counties.		THE SCHUYL'L REGION. Schuylkill, Northumberland, Columbia, Dauphin, and Lebanon counties.		ALL THE REGIONS.
	Shipments.	Total production.	Shipments.	Total production.	Shipments.	Total production.	Total production.
Before 1820	.....	10,000	.....	3,000	.....	5,000	18,000
1820	.....	800	355	.....	.....	500	1,965
1821	.....	1,000	1,073	1,473	.....	800	3,273
1822	.....	1,200	2,240	2,740	.....	1,000	4,940
1823	.....	1,300	5,823	6,523	.....	1,200	9,023
1824	.....	1,700	9,541	10,441	.....	1,500	13,641
1825	.....	2,000	28,393	29,493	5,306	7,006	38,499
1826	.....	2,700	31,280	32,760	16,835	19,335	54,815
1827	.....	4,000	32,074	34,274	29,493	32,893	71,167
1828	.....	6,200	30,233	33,233	47,181	52,481	91,914
1829	7,000	16,800	25,110	29,110	78,293	87,293	133,203
1830	42,000	58,200	41,750	46,850	89,984	104,581	209,634
1831	54,000	78,300	40,966	47,166	81,854	104,854	230,320
1832	84,500	121,700	75,000	82,700	209,271	243,771	448,171
1833	111,777	161,777	123,000	132,100	250,588	298 333	592,210
1834	43,700	53,008	106,244	128,874	226,692	274,977	456,859
1835	90,000	108,900	131,250	158,812	339,508	410,805	678,517
1836	103,861	125,360	148,211	178,891	432,045	521,478	825,729
1837	115,387	139,041	223,902	269,802	523,152	630,398	1,039,241
1838	78,207	94,053	213,615	256,979	433,875	521,951	873,013
1839	122,300	146,760	221,025	265,230	454,538	545,446	957,436
1840	148,470	177,867	225,318	269,932	467,796	560,421	1,008,220
1841	192,270	229,955	143,037	171,072	607,005	725,978	1,127,005
1842	252,599	301,856	272,546	325,692	551,504	659 047	1,286,595
1843	285,605	340,441	267,793	319,209	687,312	819,276	1,478,926
1844	365,911	435,434	377,002	448,633	853,435	1,015,623	1,899,690
1845	451,836	536,329	429,453	509,761	1,093,796	1,298,336	2,344,426
1846	518,359	614,291	517,116	612,783	1,249,151	1,480,247	2,707,321
1847	583,067	689,185	683,507	748,805	1,598,278	1,889,165	3,3 7,155
1848	685,196	808,531	670,321	790,979	1,672,191	1,973,185	3,572,695
1849	732,900	862,635	781,656	920,009	1,650,101	1,942,168	3,724,812
1850	827,823	972,672	690,456	811,286	1,769,691	2,079,387	3,863,365
1851	1,158,167	1,355,028	964,224	1,130,071	2,308,525	2,705,591	5,190,690
1852	1,284,500	1,502,865	1,072,136	1,254,399	2,536,653	2,967,884	5,725,148
1853	1,475,732	1,723,655	1,054,309	1,231,433	2,555,450	2,984,765	5,939,853
1854	1,603,478	1,868,052	1,207,186	1,406,372	3,066,208	3,572,132	6,846,556
1855	1,771,511	2,060,267	1,284,113	1,493,423	3,551,893	4,130,852	7,684,542
1856	1,972,581	2,288,191	1,351,970	1,568,285	3,571,800	4,143,288	7,999,767
1857	1,952,603	2,261,114	1,318,541	1,526,871	3,373,797	3,906,857	7,694,642
1858	2,186,094	2,527,125	1,380,030	1,595,315	3,236,843	3,711,790	7,884,230
1859	2,731,236	3,151,846	1,628,311	1,879,071	3,448,708	3,979,809	9,010,726
1860	2,941,817	3,388,973	1,821,674	2,098,569	3,749,622	4,339,576	9,807,118
1861	3,055,140	3,513,411	1,738,377	1,999,134	3,100,797	3,634,916	9,147,461
1862	3,145,770	3,608,198	1,351,054	1,549,658	3,432,544	3,937,175	9,095,031
1863	3,759,610	4,304,751	1,894,713	2,169,446	3,911,683	4,478,877	10,953,077
1864	3,960,836	4,526,635	2,054,669	2,348,233	4,861,970	4,756,532	11,631,400
1865	3,255,653	3,720,717	1,822,535	2,082,853	4,356,959	4,979,457	10,783,032
1866	4,736,616	5,413,958	2,128,887	2,433,280	5,464,209	6,245 599	14,092,837
1867	5,328,322	6,089,272	2,062,446	2,356,887	5,161,671	5,899,505	14,345,644
1868	5,990,813	6,846,699	2,507,582	2,865,820	5,335,737	6,097,947	15,810,466
1869	6,068,368	7,279,543	1,929,523	2,313,989	5,653,859	6,782,146	16,375,678
1870	7,554,909	8,814,024	2,990,878	3,489,364	4,728,242	5,516,312	17,819,700
1871	6,713,773	7,690,251	2,249,356	2,568,764	6,234,974	7,120,340	17,379,355
1872	9,194,171	10,750,050	3,610,674	4,202,824	6,126,468	7,131,209	22,084,083
1873	10,047,241	11,744,141	3,263,168	3,801,447	6,294,454	7,335,333	22,880,921
1874	9,513,042	10,241,032	3,868,749	4,139,561	6,810,087	7,286,793	21,667,386
1875	10,519,998	11,062,520	2,731,311	2,867,876	6,393,441	6,713,113	20,643,509
1876	8,100,000	8,530,000	3,800,000	3,970,000	6,200,000	6,500,000	19,000,000
1877	7,900,000	8,323,000	4,200,000	4,400,000	8,200,000	6,600,000	21,323,000
1878	7,750,000	8,250,000	3,245,000	3,440,000	6,520,000	6,910,000	18,600,000
1879	12,575,000	13,300,000	4,450,000	4,825,000	9,125,000	9,670,000	27,825,000
	153,863,795	172,944,369	71,580,696	80,687,227	154,090,548	174,356,236	427,987,832

*Includes the Loyalsock region in Sullivan county, opened in 1871. The production of this region has been as follows: 1871, 23,122 tons; 1872, 51,527 tons; 1873, 32,058 tons; 1874, 36,238 tons; 1875, 16,522 tons; 1876, 30,000 tons; 1877, 23,000 tons; 1878, 37,000 tons; 1879, 50,000 tons.

The following table by the same author gives the area and contents of the anthracite basins of Pennsylvania:

FIELD.	AREA.		Av. thick. coal, ft.	QUANTITY OF COAL.		Per cent.
	Square miles.	Acres.		Per acre. Tons.	Total quantity. Tons.	
Wyoming,	185	118,500	19	34,580	4,097,730,000	36
Lehigh,	43¾	28,000	20¼	36,855	1,030,120,000	9
Schuylkill,	215	137,500	25	45,500	6,256,250,000	55
Total,	373¾	284,000	22	40,084	11,384,100,000	100

Two hundred and forty-seven blanks were sent to coal mine operators, containing the following questions:

Name of colliery.

Name of corporation or parties operating the same.

In what year opened.

Quantity of tons produced.

Value of annual product.

Amount paid for material used in business.

Whole number of persons employed.

Amount paid annually for wages of employés.

Number of hours worked per day.

Number of days in operation during the year.

Classification, and number of each class employed, with the daily wages paid each class, and the time worked during the year, and the rate paid for same labor in 1872.

One hundred and forty-nine blanks were returned, and are tabulated as follows:

NAME OF COLLIERY.	BY WHOM OPERATED.	COUNTY.	In what year opened.	Quantity of tons produced per annum.	Value of annual product.	Amount paid for material used in business.	Whole number of persons employed.	Amount paid annually for wages of employees.
Coleraine,	Charles F. Shœner,	Carbon,	1849	95,656	$179,940 22	$22,994 00	252	$133,988 02
Buck Mountain,	Buck Mountain Coal Company,	do.	1838	113,208	219,200 00	17,500 00	400	204,139 72
Little Mine Run,	Peiffer & Garity,	Columbia,	1877	60	120 00	10 00	4	60 00
West Hazel Dell,	William Peiffer,	do.	1879	117	234 00	25 00	4	120 00
Glen,	P. McBrearty & Peiffer,	do.	1869	1,500	3,000 00	50 00	3 to 4	300 00
Glen City,	W. A. M. Grier,	do.	1872	21,907	30,964 17		123	23,431 11
Centralia and Lehigh,	Dr. G. M. Prevost,	do.	1862	55,000	100,000 00	15,000 00	290	80,000 00
Kline,	John L. Kline,	do.		225	337 50		5	
Williamstown,	Summit Branch Railroad Company,	Dauphin,	1866	259,859.10		70,992 78	740	278,606 78
Short Mountain,	Lykens Valley Coal Company,	do.		194,784			684	
East Sugarloaf,	Linderman. Skeer & Co.,	Luzerne,	1852				539	
Spring Mountain,	J. C. Haydon & Co.,	do.	1845	175,000	350,000 00	50,000 00	440	175,000 00
Ebervale,	Ebervale Coal Company,	do.	1861	273,000			446	
Franklin,	R. R. Morgan, Superintendent,	do.		140,000			424	
Mill Hollow,	Waddell & Walter,	do.	1879	24,000	52,800 00	57 50	137	19,200 00
Maltby,	Caleb S. Maltby,	do.	1878	70,073			210	65,564 47
No. 1,	Susquehanna Coal Company,	do.	1869				687	
No. 2,	Susquehanna Coal Company,	do.	1869				648	
No. 3,	Susquehanna Coal Company,	do.	1869				283	
Cross Creek, Nos. 1 and 2,	Coxe Bros. & Co.,	do.		372,965	625,000 00		781	296,507 85
Cross Creek, No. 3,	Coxe Bros. & Co.,	do.		5,455.11	9,000 00		50	14,389 24
Butler,	Butler Colliery Company,	do.	1835	55,000		14,000 00	168	66,000 00
Hollenback,	Robert S. Poole,	do.	1866	13,000	18,600 00	2,250 60	79	16,050 00
Hillman's,	H. B. Hillman,	do.	1870	50,000			150	
Enterprise,	H. C. Roberts & Co.,	do.	1866	60,000			350	80,500 00
Mount Pleasant,	Pardee, Sons & Co.,	do.		69,930			141	
Humboldt,	Linderman, Skeer & Co.,	do.		49,314	60,000 00	6,800 00	108	35,000 00
Wilcox,	Richard Cartwright,	do.	1876	1,000	1,500 00	50 00	9	
Phœnix,	Harry W. Bellman,	do.		34,519			119	46,000 00
East Boston,	William G. Payne & Co.,	do.	1865	75,000		18,554 72	264	
Pennsylvania Coal Company,	Pennsylvania Coal Company,	do.	1850	1,360,529			2,967	
Hazleton, Cranberry, and Diamond,	A. Pardee & Co.,	do.		372,673			966	
Salem,	Salem Coal Company,	do.	1869	40,000	62,000 00	14,000 00	175	44,000 00
Diamond, No. 1,	Charles Parrish & Co.,	do.					570	
Empire, No. 4,	Charles Parrish & Co.,	do.		358,457.19			829	300,000 00

COAL, ANTHRACITE—Continued.

NAME OF COLLIERY.	BY WHOM OPERATED.	COUNTY.	In what year opened.	Quantity of tons produced per annum.	Value of annual product.	Amount paid for material used in business.	Whole number of persons employed.	Amount paid annually for wages of employees.
Hartford, No. 6,	Charles Parrish & Co.,	Luzerne,	...	185,591	.....	.....	575	
Lanee, No. 11,	Charles Parrish & Co.,	do.	...	.....	.....	.....	314	
Nottingham, No. 15,	Charles Parrish & Co.,	do.	...	.....	.....	.....	871	
Reynolds, No. 16,	Charles Parrish & Co.,	do.	...	.....	.....	.....	375	
Sugar Notch, No. 9,	Charles Parrish & Co.,	do.	1866	.....	.....	.....	589	
Sugar Notch, No. 10,	Charles Parrish & Co.,	do.	1871	.....	.....	.....	586	
Wanamie, No. 18,	Charles Parrish & Co.,	do.	...	156,020.08	.....	.....	395	
Filer,	G. Filer & T. Livey,	Lackawanna,	1875	120,000	$135,000 00	$7,000 00	400	$100,000 00
Pieree,	Jones & Simpson,	do.	1877	100,000	100,000 00	15 per cent.	206	75,000 00
.....	J. P. Williams & Co.,	Lackawanna,	1865	2,000	3,000 00	.....	6	
Hillside,	Hillside Coal and Iron Company,	Luzerne,	1870					
Forest City,	Hillside Coal and Iron Company,	Susquehanna,	to	300,000	405,000 00	$50,000 00	935	295,000 00
Erie and Spring Brook,	Hillside Coal and Iron Company,	Lackawanna,	1874					
Coal Brook, Racket Brook, Carbondale, Nos. 1 and 3, White Oak, Grassy Island, Olyphant, No. 2, Marvine, Leggitt's Creek, Von Storch, Mill Creek, Pine Ridge, Laurel Run, Baltimore Slope, Baltimore Tunnel, Plymouth, Nos. 2, 4, and 5,	Delaware and Hudson Canal Company,	Lackawanna, Luzerne,	...	2,483,4.0	.....	297,205 47	5,962	1,830,177 10
Excelsior,	Excelsior Coal Mining Company,	Northumberland,	1866	75,000	.....	14,612 21	188	49,608 51
Peerless,	Crulkshank & Emes,	do.	1876	23,038.10	40,000 00	....	116	
Monitor,	George W. Johns & Bro.,	do.	1868	109,992.09	162,456 14	18,335 66	323	97,511 34
Cameron,	Mineral Railroad and Mining Company,	do.	1850	163,000	.....	44,000 00	403	118,000 00
Luke Fiddler,	Mineral Railroad and Mining Company,	do.	...	113,000	.....	26,000 00	313	87,000 00
Pennsylvania,	Mineral Railroad and Mining Company,	do.	1879	.....	.....	9,500 00	178	
Greenback,	H. J. Tondy,	do.	1879	15,634	24,024 00	3,334 00	124	15,912 08
Stuartville,	William Montellus,	do.	...	55,106	.....	5,000 00	200	58,091 66
Ben. Franklin,	Donley & Baumgardner,	do.	1879	50,000	.....	.....	142	
Stirling,	Kendrick & Co.,	do.	1876	76,545	.....	.....	209	
Henry Clay, No. 1,	J. Langdon & Co.,	do.	1876	137,188	.....	.....	332	

Big Mountain,	Paterson, Lewellyn & Co.,			do.		147,955	162,273 95	36,648 81	376	125,625 14
Pioneer,	Kautner, Vaughn & Co.,			Schuylkill,	1878	3,900	6,000 00	480 00	12	4,000 00
Rausch Gap,	William H. Yohe,			do.		500	1,000 00		3	
Tremont,	Peter Laux,			do.	1873	845			6	
Eagle Veln,	George W. Johns & Bro.,			do.	1846	46,987.02	68.789 86	8,544 19	162	42,958 56
Kohinoor,	Richard Heckscher & Co.,			do.	1868	165,000	214,500 00	24,000 00	360	140,000 00
Cambridge,	Cambridge Coal Company,			do.	1875	2,000	3,000 00	130 00	24	2,055 00
Glendon,	J. C. Haydon & Co.,			do.	1865	50,000	75,000 00	18,000 00	220	45,000 00
William Penn,	E. & G. Brooke,			do.	1869	125,000	250,000 00	50,000 00	500	125,000 00
Bear Ridge, No. 1,	Bear Ridge Coal Company,			do.		100,000			203	
Bear Ridge, No. 2,	Bear Ridge Coal Company,			do.		100,000			190	
Kehley's Run,	Thomas Coal Company,			do.	1865	125,000	250,000 00	20,000 00	451	95,000 00
Tunnel Ridge,	Joseph B. Cole,			do.	1864	65,000	75,000 00	12,000 00	191	52,000 00
Big Mine Run,	Jeremiah Taylor & Co.,			do.		62,677	72,121 31	15,853 00	269	53,292 04
Staffordshire,	Jones, Ward & Oliver,			do.	1871	13,451	18,201 00	6,441 00	34	10,806 00
Brenzel,	Brenzel & Cleaver,			do.	1878	75	112 50		33	
Primrose,	Primrose Coal Company,			do.	18 5	40,000	60,000 00	12,000 00	175	30,000 00
Cuyler,	S. M. Heaton & Co.,			do.	1866	129,291			315	
Lawrence,	Lawrence, Merkle & Co.,			do.	1868	102,739	197,679 00	26,345 04	261	96,428 62
Anchor,	The Phila. and Reading Coal and Iron Co.,			do.		None.			2	1,032 36
Bear Valley,	do.	do.	do.	Northumberland,		99,255		14,293 42	268	71,147 96
Burnside,	do.	do.	do.	do.		51,597		15,143 56	283	57,635 42
Bast,	do.	do.	do.	Schuylkill,		139,431		31,560 00	339	123,073 08
Bear Run,	do.	do.	do.	do.		57,397		19,611 11	227	53,670 96
Boston Run,	do.	do.	do.	do.		67,833		20,939 16	228	73,016 10
Buckville,	do.	do.	do.	do.		None.			1	410 60
Beechwood,	do.	do.	do.	do.		72,822		17,266 72	234	77,199 24
Conner,	do.	do.	do.	do.		132,056		27,940 54	309	109,632 16
Colket,	do.	do.	do.	do.		44,414		18,199 84	237	57,771 05
Ellangowan,	do.	do.	do.	do.		6,620		36,121 04	102	35,953 76
Elmwood,	do.	do.	do.	do.		84,776		15,309 35	177	67,085 32
Eagle Hill Shaft,	do.	do.	do.	do.		103,879		21,651 51	259	85,898 41
East Franklin,	do.	do.	do.	do.		31.675		23,179 63	188	49,815 99
Furnace,	do.	do.	do.	do.		30,539		6,588 44	126	23,591 40
Forestville,	do.	do.	do.	do.		None.		276 32	3	1,984 75
George Fales,	do.	do.	do.	Northumberland,		1,707		4,079 38	86	4,800 99
Girard,	do.	do.	do.	Schuylkill,		99,189		24,257 96	264	86,775 15
Gilberton,	do.	do.	do.	do.		55,409		11,138 54	174	37,948 83
Glendower,	do.	do.	do.	do.		52,086		15,599 82	195	63,053 56
Henry Clay,	do.	do.	do.	Northumberland,		None.			2	861 40
Helfenstein,	do.	do.	do.	do.		6		133 42	6	3,236 34
Hammond,	do.	do.	do.	Schuylkill,		116,981		19,264 05	241	76,030 85
Indian Ridge,	do.	do.	do.	do.		170,497		31,808 49	475	165,672 38
Keystone,	do.	do.	do.	do.		32,562		6,019 39	29	32,576 13
Knickerbocker,	do.	do.	do.	do.		173,715		36,951 02	313	130,708 76
Locust Spring,	do.	do.	do.	Northumberland,		58,916		20,096 01	313	63,865 86
Locust Run,	do.	do.	do.	Columbia,		100		9,444 19	15	9,306 79
Mount Carmel Shaft,	do.	do.	do.	Northumberland,		182,922		27,073 55	486	168,906 50
Merriam,	do.	do.	do.	do.		65,745		19,828 11	256	89,326 52
Mahanoy City,	do.	do.	do.	Schuylkill,		125,496		29,290 08	309	108,839 43
Mine Hill Gap,	do.	do.	do.	do.		60,405		27,919 28	315	92,069 88
Middle Creek Shaft,	do.	do.	do.	do.		None.			2	804 20
North Franklin, No. 1,	do.	do.	do.	Northumberland,		102			11	2,229 98

COAL, ANTHRACITE—Continued.

NAME OF COLLIERY.	BY WHOM OPERATED.	COUNTY.	In what year opened.	Quantity of tons produced per annum.	Value of annual product.	Amount paid for material used in business.	Whole number of persons employed.	Amount paid annually for wages of employees.
North Franklin, No. 2,	The Phila. and Reading Coal and Iron Co.,	Northumberland,		78,743		$14,493 58	258	$71,164 80
North Ashland,	do. do. do.	Columbia,		125,721		30,396 88	294	96,277 47
North Mahanoy,	do. do. do.	Schuylkill,		113,329		27,048 67	285	95,943 29
New Kirk,	do. do. do.	do.		None.			1	409 10
Otto,	do. do. do.	do.		65,317		11,797 60	242	87,628 70
Potts,	do. do. do.	Columbia,		87,684		25,245 44	236	87,311 61
Preston, Nos. 1 and 2,	do. do. do.	Schuylkill,		91,152		38,772 50	305	111,607 97
Preston, No. 3,	do. do. do.	do.		87,483		28,739 11	285	87,869 90
Plank Ridge,	do. do. do.	do.		120,859		30,506 79	363	114,789 39
Pottsville,	do. do. do.	Schuylkill,		34,305		15,519 20	291	84,895 57
Pine Forest,	do. do. do.	do.		82,015		26,833 08	239	82,399 55
Pine Knot,	do. do. do.	do.		None.			2	858 50
Phœnix Park, No. 2,	do. do. do.	do.		12,007		8,196 08	59	27,580 16
Phœnix Park, No. 3,	do. do. do.	do.		16,711		15,602 30	158	33,976 53
Pyne,	do. do. do.	do.		24,601		6,316 83	73	32,612 96
Reliance,	do. do. do.	Northumberland,		76,373		21,111 02	355	74,115 34
Rainbow,	do. do. do.	Schuylkill,		None.		1,271 94	10	4,263 49
Richardson,	do. do. do.	do.		108,325		27,847 11	283	95,886 11
Shenandoah City,	do. do. do.	do.		68,413		23,942 82	220	77,441 64
Schuylkill,	do. do. do.	do.		52,937		14,206 55	120	42,109 56
Tunnel,	do. do. do.	do.		76,257		8,473 34	208	55,974 53
Turkey Run,	do. do. do.	do.		89,301		14,298 52	279	68,667 92
Thomaston,	do. do. do.	do.		123,849		36,216 32	353	122,582 87
Taylorsville,	do. do. do.	do.		None.			1	633 90
West Shenandoah,	do. do. do.	do.		118,090		29,234 24	318	102,047 87
Wadesville Shaft,	do. do. do.	do.		109,097		31,037 35	408	120,813 63
West Brookside,	do. do. do.	do.		402,208		64,943 23	684	263,176 84

The foregoing tabulation is the report of one hundred and forty-nine collieries, showing a total production for 1879 of 13,988,148 tons, and the employment of 43,673 persons.

ACCIDENTS *at the collieries worked by the Philadelphia and Reading Coal and Iron Company for seven years, to November 30, 1879.*

YEAR.	Total tonnage.	Total serious accidents non-fatal.	Number of tons mined per serious accident.	Total fatal accidents.	Number of tons mined per fatal accident.	Number of employés.	Total serious accidents non-fatal.	Per cent. serious accidents.	Total fatal accidents.	Per cent. fatal accidents.
1873, ...	1,348,838	132	10,294	44	30,655	5,000	132	$2\frac{64}{100}$	44	$0\frac{88}{100}$
1874, ...	1,374,791	96	14,320	36	38,188	8,000	96	$1\frac{20}{100}$	36	$0\frac{45}{100}$
1875, ...	1,510,572	80	18,882	30	50,352	9,000	80	$0\frac{89}{100}$	30	$0\frac{33}{100}$
1876, (eleven months,) . . .	1,853,364	75	24,711	30	61,778	9,110	75	$0\frac{82}{100}$	30	$0\frac{33}{100}$
1877, ...	3,794,529	185	20,511	45	84,323	11,428	185	$1\frac{61}{100}$	45	$0\frac{39}{100}$
1878, ...	2,727,608	217	12,570	44	61,991	10,630	217	$2\frac{4}{100}$	44	$0\frac{41}{100}$
1879, ...	4,269,929	238	17,941	52	82,114	12,661	238	$1\frac{88}{100}$	52	$0\frac{41}{100}$

COAL, ANTHRACITE.—

NAME OF COLLIERY.	Hours worked per day.	Days in operation during the year.	Miners on contract.		Miners on wages.		Outside laborers.		Inside laborers.		Outside mechanics		Inside mech'cs.	
			Number.	Wages	Number.	Wages.	Number,	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
Coleraine,	..	243	52	$1 66	21	$1 63	7 22	$1 00 1 15	70	$1 42	3 1	$1 62	..	...
Buck Mountain,	7½	118¾	116	*63 to 86	5	1 89	55	1 16	99	1 54	13	1 38 to 2 25	24	$1 33 to 1 69
Little Mine Run,	..	50	...	...	1	1 25	3	1 25						
West Hazel Dell,	.	100	...	...	1	1 25	3	1 25						
Glen,	..	250	...	..	1	1 00	2	1 00	1	1 00	...	...	..	..
Glen City,	..	152½	29	...	3	1 40	15	1 00 to 1 10	38	1 15	2	1 50	..	...
Centralia and Lehigh,	..	140	85	2 50	26	2 00	30	1 19	3 38	75 1 60	5	2 00	4	1 85
Kline,	..	...	...	...	.	..	2	...	3					
Williamstown,	10	247¼	185	2 03	73	1 67⅔	49	1 25⅔	44 132	1 06 1 42½	13	1 91	4	1 91
Short Mountain,	10	251¾	168	2 25	16	1 67	83	1 26	189	1 42	20	1 67	18	1 67
East Sugarloaf,	.	209	144	...	6	1 54	4 66	75 1 12	14 118	60 1 27	25	1 50	..	...
Spring Mountain,	..	260	90	...	50	1 53	50	1 05	10 65	70 1 31	3 8	1 00 1 90	..	...
Ebervale,	..	...	130	†33½	...	...	75 50	80 1 10	40 100	80 1 45	20	1 50	6	1 50
Franklin,	..	179	75	2 25	...	...	87	1 15	98	1 42	14	1 75	5	1 70
Mill Hollow,	..	...	52	...	6	1 50	15	1 20	10	1 35	2	1 65	..	...
Maltby,	..	230	48	...	8	1 50	30	1 15	52	1 50	5	1 50	2 5	1 15 1 50
No. 1, (Susquehanna,)	..	229½	130	*77	1	1 68	76	1 15	225	1 40 to 1 70	40	1 50 to 1 85	7	1 68
No. 2, (Susquehanna,)	..	232½	133	*77 to 90	1	1 68	71	1 15 to 1 24	186	1 40 to 1 90	14	1 40 to 1 85	7	1 58 to 1 68
No. 3, (Susquehanna,)	..	176.3	72	...	2	1 68	35	1 15 to 1 31	57	1 40 to 1 54	7	1 65 to 2 02	1	1 85
Cross Creek, Nos. 1 & 2,	..	253½	164	2 27	97	1 66	18 60	60 1 00 to 1 25	76	1 42	7 63	80 1 60	..	...
Cross Creek, No. 3,	..	57½	6	2 96	4	1 66	...	...	8	1 42	5	1 66	..	...
Butler,	..	239	34	†52	22	1 36	17	90 to 1 30	5	1 30	4	1 90 to 2 15	2	1 65
Hollenback,	..	140	17	2 50	..	...	5	1 25	17	2 00	5	1 65	1	1 55
Hillman's,	..	200	38	2 00	3		20	..	40	...	2	...	2	...
Enterprise,	..	170	80	*60	15	1 95	30	1 25	75	1 43	3	65 00‡	1	‡65 00
Mt. Pleasant,	..	164½	42	*56 to 62	2	1 65	22	1 05	23	1 30 to 1 45	5	1 20 to 1 70	..	...
Humboldt,	..	156	35	2 40	4	1 52	5 4	1 10 1 00	9	1 18	3	1 50	..	...
Wilcox,	..	150	1	1 50	...	...	3	1 25	..		...	...	..	...
Phœnix,	..	214	32	†56	...	...	20	1 25	13	1 40	1	2 00	..	...
East Boston,	10	111	65	1 50 to 2 50	2	1 49	10	1 00 to 1 15	65	...	7	1 75 to 2 00	2	1 75 to 2 00
Pennsylvania Coal Co.,	10	298	750	...	25	1 62	269	1 14	12 915	1 55 1 20	89	1 00 to 1 85	46	1 40 to 1 85

EMPLOYEES WAGES

Outside mule drivers.		Inside mule drivers.		Weigh master.		Dumpers.		Slate pickers.		Mining overseers.		Civil engineers.		Boys.		Other employees	
Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
8	$0 80	8	$1 00	..	....	.....	....	32	$0 45	2	‡$60 00	..	..	...	...	6	$1 25
		5	1 30					10	95							2	1 42
																2	1 80
6	50	17	58	1	‡‡40 00	5	$1 16	16	92	4	‡100 00	..	....	30	$0 33		
	to		to						to		ave'ge				to		
	73		92						1 08						69		
2	1 16	7	1 54														
..	....	1	25	..	....	2	25	1	25								
1	1 00	2	1 15	..	..	2	1 25	28	25	1	‡85 00	..	....	...	...	2	1 60
									to								
									60								
4	1 00	...	..		....	.....	..	90	50	1	4 00	1	7 00	...	...	1	1 80
												Spt				2	3 00
7	77	46	1 06	..	...	6	1 27	120	70	1	3 91	1	3 00	. .	..	21	1 91
4	1 54	6	1 43					22	1 10							6	2 25
8	83	14	1 00	.	....	6	1 26	96	50	4	....	1	....	16	67	2	
5	1 26	20	1 42											18	75		
1	85	6	85	..	....	3	70	70	42	3	‡70 00	..	.....	..	...	15	1 62
9	1 15	32	1 27			6	1 00	5	84							12	1 20
6	90	7	1 12	.	....	.....	....	65	50	4	2 40	1	....	...	...	15	1 50
		30	1 35					18	85							8	2 00
																2	2 50
6	1 10	15	1 45	.	....	.....	....	.....	....	3	....	1					
5	65	14	95	..	....	3	1 15	25	30	1	5 00	1	7 00	45	50	19	1 15
								32	1 05						and		to
															60		2 00
3	60	5	1 25	1	1 10	2	1 25	40	50	1							
2	1 15	8	1 00	..	....	2	1 15	3	80	1	4 00	.	....	5	50	4	1 25
								25	35							6	1 60
									to							2	1 50
									70							2	1 75
4	79	43	82	..	....	.....	....	16	79	2	‡81 00	.	....	21	59	24	1 15
	to		to					85	30						to		to
	1 15		1 28						to						69		1 75
									70								
4	79	56	82	..	....	4	1 26	26	79	3	‡67 50	.	...	33	59	15	1 24
	to		to					91	30		to				to	3	1 86
	90		1 20						to		81 00				70		to
									70								2 25
2	82	5	92	1	1 31	1	1 75	74	45	2	3 25	..	....	9	59		
1	1 30	4	1 40						to								
									75								
								10	79								
7	1 28	38	1 54	..	....	2	1 25	79	45	3	3 80	4	2 40	106	45	24	1 25
								112	1 05						to		to
															75		2 12
..	...	1	50	..	....	...	..	17	35	1	‡75 00	..	...	...	...	1	1 36
		3	1 54					3	1 05							1	2 12
1	65	8	65	1	1 80	...	...	48	40	1	....	.....		...	...	2	
1	1 10		to						to								
			80						45								
		4	1 50														
1	1 00	4	1 17	1	1 50	1	1 25	9	40	1	2 50						
3	..	8	..	..		1	.	10	...	1	. .	1	....	...	1 25		
7	1 15	30	1 30	1	‡25 00	2	1 25	60		2	‡150 00	1	§1,000	..	.	...	...
1	65	5	..	..	...	2	1 05	11	70	1	....	..	....	24	27	1	
									to						55		
2	1 10								1 00						1 00		
1	1 25	4	1 18	..	....	1	75	25	38	1	3 00	..	...	3	75	2	1 18
								3	90							2	1 21
																4	1 62
																1	1 75
.	...	...		..	....	..	...	...	..	..	.	..	....	5	40		
2	1 00	8	1 00	1	1 50	5	1 25	30	45	2	1 50	1	‖100 00				
									to		to						
									65		2 00						
3	1 00	26	96	1	1 25	2	1 15	65	50	2	3 25	1	....	12	1 37		
	to		to				and		to								
	1 05		1 10				1 60		1 00								
31	70	220	78	18	1 50	38	1 15	350	40	20	2 77½	2	‡100 00	156	50	26	1 60
															to		to
															1 02		4 10

COAL, ANTHRACITE.—

NAME OF COLLIERY.	Hours worked per day.	Days in operation during the year.	Miners on contract. Number.	Miners on contract. Wages.	Miners on wages. Number.	Miners on wages. Wages.	Outside laborers. Number.	Outside laborers. Wages.	Inside laborers. Number.	Inside laborers. Wages.	Outside mechanics Number.	Outside mechanics Wages.	Inside mech'es. Number.	Inside mech'es. Wages.
Hazleton, Cranberry, and Diamond.	10	224	241	*$ 69	. . .	. .	166	. . .	131	$1 16 to 1 50	117	$1 25 to 2 25	23	$1 16 to 1 50
Salem,	10	228	40	2 50	. .	. . .	4	$1 20	50	1 35	2	1 65	. .	. . .
Diamond, No. 1,	10	171¾	98	4 40	4	1 73	62	1 25	265	1 60	15	1 60	25	1 75
Empire, No. 4,	7	257½	130	2 61	. . .	. . .	39	1 20	380	1 50	13	1 75	21	1 80
Hartford, No. 6,	10	191¼	120	2 25	10	1 73	44	1 18	180	1 55	17	1 80	7	1 60
Lance, No. 11,	7½	172½	97	*87	2	1 73	5	97	8	1 02	5	1 78	4	1 78
							20	1 18	102	1 37				
Nottingham, No. 15,	8½	228.2	250	*73	10	1 73	12	97	42	1 02	9	1 78	8	1 78
							58	1 18	292	1 37				
Reynolds, No. 16,	10	265.6	104	*61	2	1 73	4	97	10	1 02	6	1 78	3	1 78
							25	1 18	123	1 37				
Sugar Notch, No. 9,	10	153	130	1 90	20	1 73	10	1 10	120	1 45	12	1 50	6	1 70
Sugar Notch, No. 10,	10	92	175	1 90	53	1 73	78	1 10	135	1 45	12	1 50	4	1 70
Waunamie, No. 18,	10	222	102	4 75	16	1 67	36	1 10	96	1 55	10	1 70	7	1 75
Filer,		210	140	1 75	. . .	. . .	10	1 15	125	1 15 to 1 50	7	1 75 to 2 00	3	1 63
Pierce,	. .	206	64	2 12	.	. .	14	1 15	50	1 40	8	1 60 to 1 75	2	1 60
(Williams & Co.,)	. .	. . .	2	. . .	. . .		2	1 00	2	1 75				
Hillside Coal & Iron Company.	. .	260	198	1 73	4	1 32	108	95 to 1 10	285	1 27	21	1 53 to 1 70	5	1 53
Delaware and Hudson Canal Company.	10	225⅙	1,532 Min. lab'r 1,104	1 70 1 40	166	1 49	136	1 05	178	1 27	162	1 70	88	1 70
Excelsior,		204	80	1 50	. . .		21	1 05	10	1 20	4	1 50	. .	.
Peerless,	. .	144	50	. .	6	1 41⅔	12	1 16⅔	11	1 25	3	1 50	1	1 50
Monitor,	. .	264	76	2 16⅔	32	1 84	19	1 30	79	1 53⅓	5	1 52	. .	. . .
Cameron,	. .	287	134	1 76	24	1 45	55	1 17	60	1 26	10	1 60	7	1 55
Luke Fiddler,	. .	259	130	1 82	20	1 50	25	1 13	35	1 28	8	1 50	2	1 62
Pennsylvania,	. .	77	39	2 00	8	1 50	28	1 25	38	1 33	11	1 63	1	1 49
Greenback,	. .	105	40	2 00	5	1 33	11	1 00	17	1 25	2	1 33	2	1 33
Stuartville,	. .	187	62	. . .	. .	. .	18	1 33⅓	23	1 50	5	2 00	. .	. .
Ben Franklin,	. .	236	49	1 83	2	1 40	14	1 25	18	1 28	3	1 52	2	1 75
Stirling,	10	245	100	2 10	. . .	. . .	5	75	3	1 00	5	1 75	. .	. . .
							15	1 15	25	1 30				
Henry Clay, No. 1,	10	278	150	2 05	. .	. .	25	1 15	5	1 10	7	1 75	1	1 75
									65	1 30				
Big Mountain,	. . . .		175	2 00 av'e.	12	1 40 av'e.	29	1 00	10 40	60 1 25	10	1 25	2	1 25
Pioneer,	. .	240	3	1 80	2	1 80	2	1 50	1	1 50	. . .	. . .	. .	. . .
Rausch Gap,	. .	70	. .	. . .	1	1 50	1	1 00	. . .	. . .	. . .	. . .	.	. . .
Tremont,	. .	152	. .		2	1 00	. . .		1		. . .	. . .	. .	. . .
Eagle Veiu,	. .	216	17	2 08⅓	33	1 68⅔	10	1 26½	36	1 56⅓	3	40 00‡	. .	. . .
Kohinoor,	. .	235	130	2 40	20	1 70	24	1 15	30	1 30	11	1 80	3	1 70
Cambridge,	. .	100	8	1 50	1	2 00	2	1 33	3	1 70	1	2 00	. .	. . .
Glendon,	. .	122	75	. . .	2	1 55	3	92	32	1 38	3	1 75	2	1 65
							18	1 12						
William Penn,	. .	260	100	2 50	20	2 00	100	1 40	60	1 60	10	2 00	3	2 00

EMPLOYEES WAGES.—Continued.

Outside mule drivers.		Inside mule drivers.		Weigh master.		Dumpers.		Slate pickers.		Mining overseers.		Civil engineers.		Boys.		Other employees	
Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
14	1 10	22	1 16	..	....	...	...	179	25 to 60	7	....	..	....	11	...	33	
10	1 40	12	1 50														
7	1 00	9	1 00	1	90	2	1 30	30	45	1	3 50	.	....	3	50	15	1 00 to 1 50
		1	1 75					10	66								
7	1 20	14	1 35	..	....	5	1 18	50	55	1	...	.		21	60		
4	1 10	52	1 30	..	...	4	1 18	130	60	1	4 30	1	2 70	54			
8	1 10	23	1 25	..	..	7	1 18	136	55	1	.	..	....	20	60		
4	1 15	17	1 02	1	1 18	2	1 18	38	60	1	3 46	..	.....	...	...	1	2 25
		4	1 45					4	87							1	2 69
2	1 02	37	1 02	1	1 18	4	1 18	109	60	1	3 65	..	.....	...	...	3	2 25
1	1 18	8	1 45					23	87							1	2 69
9	1 15	18	1 02	1	1 18	2	1 18	45	60	1	3 46	..	.....	...	...	1	2 25
		6	1 45					14	87							1	2 69
4	1 00	40	1 25	.	...	20	...	105	60	1	...	..	.....	39	60	20	1 45
								30	90					32			
7	1 00	46	60 to 1 25	.	....	10	1 18	56	60	1	....	..	.....	...	...	1	1 25
								8	90								
10	1 25	24	1 35	.	.	5	...	70	50	1	....	..	....	16	60		
7	60	30	63 to 1 02	1	1 60	4	1 15	65	39 to 44	1	§900 00	..	.....	.	..	8	1 15 to 2 00
2	70	13	67½	1	1 45	3	1 15	48	42	1	2 12						
17	59	85	80 to 1 32	3	1 25	15	1 15	9	80	7	‡46 00 to 76 00	1	‡125 00	22	40 to 50	7	1 85
								148	30 to 50								
														1,068	31 to 44	40	1 25 to 1 11
38	59	519	53 to 1 11	30	1 25	138	1 15	50	80	20 out form'n 2>	3 38 2 24	3	3 20	8 285 139	1 38 51 87 to 1 27	62 10 161	1 14 1 08
2	70	7	1 20	..	...	...	...	60	62	2	3 50	2	1 50				
4	1 16⅔	3	1 16⅔	..	....	.	...	25	45 to 60	1							
6	83⅓ 1 04	13	66⅔ to 1 16⅔	..	...	..	...	78	37½ to 75	3	....	..	....	...	...	12	‡36 00 to 50 00
10	87	35	1 16	..	....	8	1 12	58	58	1	3 88	1	3 50				
6	84	15	1 04	..	...	3	1 08	80	61	1	2 80	..	....	18	72		
3	1 02	5	1 16	..	....	4	1 18	40	71	1	2 80						
4	60	5	1 30	..	....	3	90	2	75	2	2 15						
1	1 00							30	30								
3	1 10	7	1 20	..	...	...	...	59	60 and 90	1	3 25	..	....	9	80		
2	90	6	1 25	..	....	2	1 00	42	45	2	3 00						
5	1 00	4	1 25	..	....	1	1 15	42	50	1	3 60	..	....	...	..	1	3 00
		2	1 40														
6	1 00	6	1 25	..	....	2	1 15	60	50	2	3 30	..	...	...	...	1	3 20
		2	1 40														
3	75	6	75	1	1 00	2	1 16⅔	60	45	2	2 75	..	....	...	...	1	2 24
8	1 16⅔	8	1 25					5	65							1	4 16
..	..	1	1 00	..	....	...	...	3	75								
..	....	...	...	1	1 00												
.	....	...	...	..	....	...	...	..		1	....	..	.	2	75		
1	1 22⅔	...	...	..	....	...	...	36	37½ to 62½	3	....	..	....	13	84½	8	‡40 00 to 50 00
3	1 15	15	1 30	..	...	...	...	34	80	2	4 00	..	....	87	65 to 1 10	1§	200 00
2	1 33	1	1 70	..	....	...	...	3	70	1	2 00						
5	80	2	1 10	..	....	...	...	10	78	3	....	..	....	15	50 to 60	6	1 38 to 1 55
		6	1 38					40	30 to 75								
	1 00	15	1 25	..	....	5	1 25	100	75	1	5 00						

COAL, ANTHRACITE.—

NAME OF COLLIERY.	Hours worked per day.	Days in operation during the year.	Miners on contract.		Miners on wages.		Outside laborers.		Inside laborers.		Outside mechanics		Inside mech'cs.	
			Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
Bear Ridge, No. 1,	..	232	32	.	. . .	.	33	$1 35	38	$1 70	8	. . .	1	‡63 00
Bear Ridge, No. 2,	..	90¾	33	. . .	7	$2 00	21	1 35	51	1 70 to 1 83½	2	$2 00	..	. . .
Kehley's Run,	..	238¼	49	$2 14	30	1 84	35	1 17	11 52	69 1 35	5	1 59	2	$1 76
Tunnel Ridge,	..	157	48	. . .	8	1 75	15	1 35 1 50	38	1 65	6	2 00	2	2 00
Big Mine Run,		158¼	90	2 02	..	.	30	1 21	34	1 48	6	1 70	..	. . .
Staffordshire,	..	184½	20	..	3	2 00	3	1 33	1	1 83	1	2 00	..	. . .
Brenzel,	.	169	6	1 66	.	.	4 4	75 1 00	2 3	1 00 1 33	13	1 33	..	..
Primrose,	10	160	50	1 25 to 2 00	30	1 25 to 2 00	20	. . .	30	..	3	. . .	..	..
Cuyler,	10	215	128	. . .	. . .	..	38	.	11	. . .	8	..		..
Lawrence,	10	263½	47	. . .	7	1 69	18	1 39½	51	1 43½	8	1 73½	6	1 27
Anchor,	..	. . .	..	. . .	. . .	. . .	1	1 30	..	. . .	. . .	. . .	..	. . .
Bear Valley,	10	276¼	59	1 80	11	1 56	8 20	80 1 21	5 53	84 1 36	8	1 63	.	. . .
Burnside,	10	177¾	89	1 95	9	1 07	3 25	95 1 22	7 42	67 1 34	6	1 57	..	. . .
Bast,	10	254½	90	2 33	16	1 82	2 35	66 1 27	9 69	77 1 56	10	1 67	..	. . .
Bear Run,	10	167	48	2 09	5	1 76	7 25	86 1 28	3 37	66 1 54	8	1 67	..	. . .
Boston Run,	10	222¾	56	1 88	6	1 72	30	1 23	2 48	59 1 53	8	1 72	..	. . .
Buckville,	..	315	.	.	.	..	1	1 30						
Beechwood,	10	239¾	88	1 73	5	1 67	5 19	70 1 28	9 38	80 1 51	7	1 79	..	. . .
Conner,	10	257¾	110	2 08	8	1 76	36	1 21	8 36	63 1 50	7	1 59	.	. . .
Colket,	10	276¾	80	2 03	12	1 76	2 18	28 1 27	19 34	61 1 50	8	1 78	..	. . .
Ellangowan,	10	15	48	1 94	3	1 76	9	1 31	22	1 50	7	1 68	..	. . .
Elmwood,	10	241¾	48	1 89	7	1 65	15	1 29	6 30	67 1 50	7	1 66	..	. . .
Eagle Hill shaft,	10	262½	85	2 03	4	1 55	6 20	84 1 29	15 48	72 1 50	12	1 69	..	. . .
East Franklin,	10	206¼	48	2 10	11	1 59	4 29	71 1 28	9 21	69 1 50	11	1 75	.	. . .
Furnace,	10	135	40	1 56	2	1 76	2 16	92 1 23	2 20	59 1 50	6	1 54	..	. . .
Forestville,	10	. . .	. . .	. . .	. . .	. . .	1	1 36	1	1 50	..	.	. .	. . .
George Fales,	10	19	26	1 39	. . .	. . .	1 8	1 06 1 25	2 16	84 1 36	6	1 58	..	. . .
Girard,	10	254¼	44	2 44	11	1 76	2 34	92 1 26	5 56	85 1 55	9	1 72	..	..
Gilberton,	10	174¼	18	2 80	9	1 76	35	1 28	3 27	59 1 55	11	1 65	..	. . .
Glendower,	10	228½	28	2 16	18	1 73	1 16	87 1 35	5 33	66 1 53	12	1 62	..	. . .
Henry Clay,	..	. . .	. . .	. . .	. . .	..	2	1 30						
Helfenstein,	10	. . .	. . .	..	2	1 76	1	1 30	1	1 50	. . .	.	.	. . .
Hammond,	10	249½	31	2 61	20	1 76	36	1 31	2 47	62 1 54	9	1 70	.	. . .
Indian Ridge,	10	261	141	1 92	8	1 76	2 44	81 1 20	12 72	77 1 53	12	1 68	..	. . .
Keystone,	10	99½	. . .		7	1 82	14	1 21	1	1 68	5	1 66	..	. . .
Knickerbocker,	10	261½	86	1 97	3	1 76	6 35	85 1 25	5 44	69 1 50	10	1 69	..	. . .
Locust Spring,	10	142½	91	1 73	15	1 64	7 30	84 1 26	6 50	77 1 45	7	1 69	..	. . .
Locust Run,	10	. . .	. . .	. . .	. . .	. . .	7	1 25	1	1 50	5	1 66	..	. . .
Mount Carmel shaft,	10	262¼	169	1 80	9	1 76	4 43	92 1 22	19 49	70 1 50	11	1 68	..	. . .
Merriam,	10	198½	42	2 18	6	1 76	1 37	88 1 25	8 64	84 1 52	11	1 72	..	. . .

EMPLOYEES WAGES—Continued.

Outside mule drivers.		Inside mule drivers.		Weigh-master.		Dumpers.		Slate pickers.		Mining overseers.		Civil engineers.		Boys.		Other employees	
Number.	Wages	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
2	$1 08½	6	$1 30	..	....	...	.	77	$0 37½ to 83½	2	...	..	....	4	$0 80		
9	90 to 1 08	...	..	..	....	...	...	59	37½ to 83½	2	‡$60 00 and 90 00	..	....	4	80	2	$1 50
3	88	8	1 35	1	$1 50	4	$0 88	140	61	5	2 80	.	.....	...	...	72	1 32 to 1 98
3	1 17					2	1 77	29	81								
4	1 00	5	1 50	.	...	2	1 35	55	60	2	...	..	....	2	75		
								7	1 08								
7	92	8	1 38	..	...	...	...	79	57	2	....	..	....	13	50		
..	...	2	1 25	..	...	...	..	4	83								
..	...	...	...		....	..	.	...	...	1	2 88						
	...	7	...	..	....	...	.	30	37½ to 1 00	3							
3	..	15	..	..	..	..	...	111	..	1							
3	1 08⅔	11	1 12½	1	1 66⅔	...	...	73	78⅛	3	4 80	..	....	7	0 69	26	1 11½ to 2 66⅔
..		...	..	..	....	...			.	1	1 63						
7	69	20	1 19	.	....	2	1 17	68	41	3	3 09						
4	1 40																
7	76	14	1 28	..	...	.	...	77	51	2	3 25						
2	1 47																
4	1 25	14	1 32	..	....	4	1 19	77	57	6	2 75						
								3	1 03								
7	84	7	1 31	..	....	2	1 19	74	56	3	2 93						
1	1 47																
2	73	...	...	..	...	1	1 39	68	55	3	2 87						
4	1 33																
4	71	8	95	..	....	2	1 32	39	51	4	2 88						
1	1 47	5	1 34														
7	89	9	85	.	....	2	1 26	73	63	2	3 27						
2	1 33	9	1 30														
4	68	8	71	..	....	1	73	42	42	4	2 80						
1	1 47	3	1 40			1	1 03										
1	73	6	1 39	..	....	.	...	...	...	3	3 03						
3	1 42																
3	95	2	82	.	....	1	1 32	43	55	2	3 33						
1	1 47	7	1 14														
2	57	9	95	..	....	2	1 17	48	40	4	2 69						
1	1 32	3	1 23														
5	59	3	88	..	...	...	..	41	45	3	2 97						
1	1 32	2	1 49														
2	88	4	1 50	..	....	2	1 14	27	55	2	3 37						
1	1 47																
..	...	...	.	..	....	...	...	.		1	3 09						
3	48	5	1 06	..	....	..	...	15	48	2	2 82						
		2	1 28														
7	92	1	77	..	....	.	..	75	62	5	2 79						
2	1 42	9	1 43					4	1 03								
4	79	1	88	.	....	1	1 19	55	54	3	3 06						
2	1 39	5	1 18														
3	86	3	88	..	....	2	1 25	56	49	4	2 60						
4	1 50	10	1 42														
..	...	..	...	..	....	...	...	.	...	2	2 67						
5	81	2	84	..	....	1	95	72	59	4	2 72						
2	1 47	8	1 45			2	1 19										
8	92	3	81	..	....	2	1 23	144	62	3	3 17						
2	1 47	22	1 08														
..	..	..	...	..	....	...	.		...	2	3 34						
6	81	9	1 14	.	....	2	1 17	102	58	2	3 35						
3	1 37																
2	88	1	88	..	....	4	1 14	86	58	4	2 71						
3	1 35	7	1 25														
..	...	...		..	....	...		.	...	2	2 73						
4	95	8	96		...	2	1 25	126	62	4	2 84						
3	1 47	25	1 39														
1	88	1	84	..	..	..	...	66	55	5	2 57						
1	1 32	10	1 24					3	1 03								

COAL, ANTHRACITE.—

NAME OF COLLIERY.	Hours worked per day.	Days in operation during the year.	Miners on contract.		Miners on wages.		Outside laborers.		Inside laborers.		Outside mechanics		Inside mech'cs.	
			Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
Mahanoy City,	10	264½	96	$1 72	3	$1 76	1	$0 88	6	$0 62	13	$1 65	.	. . .
							23	1 29	45	1 52				
Mine Hill Gap,	10	196¾	56	2 47	29	1 76	5	85	22	66	17	1 65	. .	. . .
							33	1 27	63	1 54				
Middle Creek shaft,	10	. . .	. . .	. . .	.	.	2	1 30						
North Franklin, No. 1,	10	. .		. .	4	1 69	2	1 31	.	. . .	4	1 78	. .	. . .
North Franklin, No. 2,	10	193	79	2 00	12	1 61	7	77	5	81	8	1 43	. .	. . .
							26	1 23	27	1 39				
North Ashland,	10	245	66	2 26	6	1 65	2	92	5	82	12	1 63	. .	. . .
							41	1 21	47	1 52				
North Mahanoy,	10	268¼	115	1 65	2	1 76	3	88	6	52	7	1 68	.	. . .
							16	1 23	41	1 51				
Newkirk,	. .	. . .		. .			1	1 30						
Otto,	10	213½	78	2 21	11	1 76	5	80	1	79	11	1 77	. .	. . .
							24	1 15	38	1 42				
Potts,	10	228½	32	2 16	9	1 81	1	95	11	82	12	1 67	. .	. . .
							34	1 26	50	1 65				
Preston, Nos. 1 and 2,	10	243	69	2 45	22	1 76	8	1 01	8	70	13	1 53	. .	. . .
							38	1 24	34	1 55				
Preston, No. 3,	10	249	51	2 05	14	1 77	38	1 26	9	81	7	1 82	. .	. . .
									68	1 62				
Plank Ridge,	10	266¼	158	1 70	8	1 76	4	77	15	70	10	1 65	.	. .
							30	1 26	26	1 46				
Pottsville,	10	157¼	82	1 52	27	1 65	2	83	6	73	10	1 76	. .	. . .
							33	1 20	62	1 50				
Pine Forest,	10	238½	86	1 78	9	1 63	9	76	7	70	12	1 73	. .	. . .
							20	1 23	35	1 53				
Pine Knot,	. .	. .	. . .		. . .		2	1 30						
Phœnix Park, No. 2,	10	109¾	11	1 79	10	1 76	1	88	9	73	7	1 69	. .	. . .
							7	1 29	10	1 50				
Phœnix Park, No. 3,	10	106¾	66	1 33	2	1 63	3	81	11	70	5	1 79		. . .
							14	1 27	14	1 50				
Pyne,	10	165¾	8	2 20	3	1 76	1	51	13	1 40	5	1 72	. .	. . .
							17	1 22						
Reliance,	10	175¾	127	1 66	5	1 67	2	88	6	80	11	1 57	. .	. . .
							41	1 14	21	1 48				
Rainbow,	10	. . .	. . .	. .	. .	.	3	1 37	. . .	. . .	6	1 78	. .	. . .
Richardson,	10	252½	67	2 03	27	1 72	3	72	12	67	11	1 71	. .	. . .
							34	1 25	40	1 51				
Shenandoah City,	10	239	63	1 82	9	1 70	4	86	11	70	7	1 71	. .	. . .
							18	1 22	40	1 49				
Schuylkill,	10	199½	31	2 07	2	1 76	1	83	1	73	8	1 52	. .	. . .
							9	1 26	16	1 50				
Tunnel,	10	15°½	. .	.	10	1 80	2	88	6	77	15	1 70	. .	. . .
							37	1 24	44	1 66				
Turkey Run,	10	184½	86	1 94	13	1 70	2	1 03	7	70	11	1 69	. .	. . .
							25	1 20	47	1 50				
Thomaston,	10	267½	109	1 94	32	1 74	2	88	11	66	10	1 72	. .	. . .
							32	1 27	39	1 52				
Taylorsville,		. .	. .	. . .	. .		1	1 30						
West Sheuandoah,	10	259½	101	1 76	6	1 76	2	88	9	73	11	1 65	. .	. . .
							37	1 28	27	1 63				
Wadesville shaft,	10	220½	132	1 57	38	1 61	4	73	49	71	11	1 69	. .	. . .
							30	1 23	79	1 51				
West Brookside,	10	279	174	2 59	22	1 63	1	66	58	75	18	1 65	. .	. .
							47	1 30	220	1 50				

* Price paid per car. † Price paid per ton. ‡ Monthly wages.

EMPLOYEES WAGES—Continued.

Outside mule drivers.		Inside mule drivers.		Weigh-master.		Dumpers.		Slate pickers.		Mining overseers		Civil engineers.		Boys.		Other employees	
Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
3	$0 83	2	$0 92	..	....	2	$1 26	96	$0 56	3	$2 95						
2	1 47	14	1 19														
4	73	4	92	.	....	3	1 17	59	52	4	2 77						
1	1 47	14	1 13					1	1 03								
1	1 32																
4	71	1	88	..	....	3	1 17	67	45	2	3 21						
4	1 37	13	1 23														
5	88	2	95	..	....	2	1 19	92	57	2	3 42						
5	1 24	7	1 34														
2	88	5	82	..	....	1	1 39	79	60	2	3 11						
1	1 47	5	1 32														
4	74	4	79	..	....	3	1 28	50	47	5	2 70						
2	1 25	6	1 28														
4	66	2	96	..	...	2	1 17	63	57	5	2 87						
1	1 17	10	1 61														
7	92	8	1 03	..	....	3	1 32	76	70	5	2 74						
7	1 34	5	1 49														
2	88	12	1 40	..	....	2	1 25	71	56	5	2 79						
6	1 26																
4	82	16	1 08	..	....	3	1 17	84	54	4	2 94						
1	1 47																
5	73	4	88	..	....	2	1 17	47	42	4	2 84						
1	1 17	6	1 13														
2	73	7	70	..	....	1	1 25	44	46	4	2 56						
		3	1 36														
1	1 47	1	1 50	..	....	...	...	...	...	2	2 42						
1	73	3	88	..	...	...	.	34	48	3	2 97						
2	1 36																
3	63	2	1 17	..	....	..	...	17	49	3	2 88						
1	1 32																
7	92	4	88	..	...	3	1 23	120	61	2	3 11						
1	1 47	5	1 27														
1	1 30																
4	73	5	83	..	....	2	1 03	66	49	4	2 67						
1	1 47	7	1 24														
3	85	13	1 14	..	....	2	1 11	44	58	4	2 67						
2	1 32																
1	81	2	88	..	....	2	1 25	37	55	2	3 12						
1	1 47	7	1 13														
1	59	2	84	..	....	...	...	69	56	5	2 84						
7	1 31	10	1 45														
3	88	9	98	..	....	1	1 32	67	54	2	3 11						
3	1 32	3	1 49														
7	77	13	86	..	...	1	1 32	79	51	4	2 66						
3	1 18	11	1 16														
9	83	13	92	..	....	2	88	94	57	3	2 91						
1	1 47	2	1 50			1	1 32										
6	64	5	88	..	....	1	1 32	66	41	4	2 95						
4	1 32	9	1 47														
12	81	21	1 41	.	....	5	1 32	97	53	5	2 96						
4	1 47																

§ Annual salary. ‖ Amount paid per year.

RECAPITULATION.

The following tables are a recapitulation of the foregoing, showing the number and classification of employees, the average number of days employed, with average daily, yearly, and weekly earnings:

COUNTY.	Number of returns.	Average days employed.	Number of miners on contract.	Number of miners on wages.	Number of inside laborers and drivers.	Number of outside laborers, drivers, and dumpers.	Number of mechanics, &c.	Number of boys.
Carbon,	2	181	168	26	184	93	51	126
Columbia,	9	176	212	47	197	154	45	312
Dauphin,	2	249½	353	89	347	153	84	391
Luzerne,	32	196	3,625	365	4,764	1,792	1,013	3,195
Luzerne and Lackawanna,	25	225	1,936	170	2,378	529	584	1,855
Northumberland,	23	194	1,767	182	958	625	179	1,496
Schuylkill,	65	200	3,566	620	2,549	1,625	706	4,165
Totals,	158	.....	11,627	1,499	11,374	4,971	2,662	11,540
Average days,	.....	203						

RECAPITULATION.

COUNTY.	AVERAGE DAILY WAGES.						Average days employed.	AVERAGE EARNINGS.											
								YEARLY.						WEEKLY—(for 52 weeks.)					
	Miners on contract.	Miners on wages.	Inside laborers.	Outside laborers.	Mechanics.	Boys.		Miners on contract.	Miners on wages.	Inside laborers.	Outside laborers.	Mechanics.	Boys.	Miners on contract.	Miners on wages.	Inside laborers.	Outside laborers.	Mechanics.	Boys.
Carbon,	$2 20	$1 77	$1 45	$1 12½	$1 60	$0 71½	181	$398 20	$320 37	$262 45	$203 62	$289 60	$129 41	$7 65	$7 16	$5 05	$3 91	$5 57	$2 49
Columbia,	2 36	1 80	1 46	1 19	1 80	51	176	415 36	316 80	256 96	209 44	316 80	89 76	7 99	6 09	4 94	4 03	6 09	1 75
Dauphin,	2 13	1 67	1 42	1 26	1 82	76	249⅛	531 43	416 08	354 29	314 37	454 09	189 62	10 22	8 01	6 81	6 05	8 73	3 65
Luzerne,	2 25	1 60	1 33	1 13	1 66	59	196	441 00	313 60	260 68	221 48	325 36	115 64	8 48	6 03	5 01	4 26	6 25	2 22
Luzerne and Lackawanna,	1 72	1 46	1 26	1 10	1 42	48	225	387 00	328 50	283 50	247 50	319 50	108 00	7 44	6 32	5 45	4 76	6 14	2 07
Northumberland,	1 87	1 56	1 35	1 18	1 62	62	194	362 78	302 64	261 90	228 92	314 28	120 28	6 98	5 82	5 02	4 40	6 04	2 31
Schuylkill,	2 07	1 57	1 33	1 38	1 70	60	200	414 00	314 00	266 00	276 00	340 00	120 00	7 98	6 04	5 11	5 31	6 54	2 30

Meadow Brook and National Collieries.

William Connell & Co., Scranton, Lackawanna county.
Production for the year 1879, 213,300 tons.
Value of product, $1,327,560 99.
Paid for material used in business, $98,846 70.
Whole number of persons employed, 643.
Amount paid annually for wages of employés, $195,629 95.

CLASSIFICATION.	Number of men.	Number of boys.	Daily wages paid men.	Daily wages paid boys.	Hours worked per day.	Days in operation during the year.	What rate was paid for same labor in 1872.
Miners on contract,	128	...	$2 80	....	7	219	$3 50
Miners on wages,	12	...	1 65	....	7	219	2 30
Outside laborers,	26	...	1 15	....	7	219	1 67
Inside laborers,	160	...	1 28	....	7	219	1 77
Outside mechanics,	25	...	1 80	....	7	219	2 50
Inside mechanics,	10	...	1 65	....	7	219	2 26
Outside mule drivers,	...	16	....	$0 65	7	219	82
Inside mule drivers,	8	75	1 40	90	7	219	1 75 1 07
Weigh-master,	2	...	50	....	7	219	50
Dumpers,	7	...	1 15	....	7	219	1 75
Slate pickers,	10	150	1 15	45	7	219	1 30 55
Mining overseers,	4	...	3 00	....	10	311	3 50
Civil engineers,	1	...	3 50	....	10	311	3 50
Teamsters, &c.,	9	...	....	....	10	311	
	402	241					

[The foregoing report came in too late to be included in the tables and totals already made.]

COAL—BITUMINOUS.

The extent of the bituminous and semi-bituminous coal fields of the State is fully set forth in the reports of the three bituminous coal mine inspectors, which will be found in another portion of this volume.

Three hundred and thirty-four blanks were sent to bituminous coal operators and coke producers, ninety-six of which were returned, and are tabulated as follows:

NAME OF COLLIERY.	BY WHOM OPERATED.	COUNTY.
Mansfield Coal and Coke Company,	Mansfield Coal and Coke Company,	Allegheny,
Fort Pitt,	Fort Pitt Coal Company,	do.
Bower Hill,	A. J. Schulte,	do.
Wood Coal Works,	Wettengel & Gormley,	do.
James Nimiek,	Thomas Fox,	do.
Enterprise,	Hartley & Marshall,	do.
Fair Haven,	Pittsburgh and Castle Shannon R. R. Co.,	do.
Streets Run Coal Works,	Ithamar D. Risher,	do.
Amity,	J. C. Risher & Co.,	do.
Camden,	George Lysle & Son,	do.
Allequippa,	Whigham, Bailey & Co.,	do.
Robbius & Jenkins,	Robbins & Jenkins,	do.
Youghiogheny,	James O'Neil, lessee,	do.
Hampton,	John McIntyre,	do.
Sandy Creek,	New York and Cleveland Gas Coal Co.,	do.
	M. Graver & Co.,	do.
Oak Ridge Mine,	Oak Ridge Coal Company, (limited,)	do.
	Corry & Co.,	do.
Chess Pitt,	Gray & Bell,	do.
Cherry,	Morris McCue,	do.
Jefferson Coal Works,	Foster, Clark & Wood,	do.
Oseeola Coal Company,	Oseeola Coal Company,	do.
Enterprise,	O'Neil & Co.,	do.
Lane and Cambria,	Sandy Run Coal Company,	Bedford,
Mount Equity,	Kemble Coal and Iron Company,	do.
Bennington Shaft,	Blair Iron and Coal Company,	Blair.
Carbon Run,	Schraeder Coal Company,	Bradford,
Sonman,	William H. Piper & Co.,	Cambria,
	J. C. Martin,	do.
Lloydsville,	Bell's Gap Railroad Company,	do.
Ben's Creek,	S. H. Smith,	do.
Snow Shoe,	Bellefonte and Snow Shoe R.R. Company,	Centre,
Fairmount,	Fairmount Coal Company,	Clarion,
Catfish and Hillville,	Pittsburgh Coal and Mining Company,	do.
Sligo Branch Coal Company,	Sligo Branch Coal Company,	do.
Dagnscahonda,	Northwestern Mining and Exchange Co.,	Elk,
Eureka,	Daniel Eldridge,	do.
St. Mary's,	St. Mary's Coal Company,	do.
Carondelet,	Frazer & Fryc,	Fayette,
Turnbull & Hall,	Turnbull & Hall,	do.
Excelsior,	Bortner & Winnett,	do.
Spring Grove Coke Works,	Cochran & Keister,	do.
Jackson Mines,	Jackson Mines Company,	do.
Fayette,	James Cochran,	do.
Painter,	Rafferty & White,	do.
Pennsville,	A. H. Sherrick,	do.
Eldorado,	Zuck & Henry,	do.
Pitts. and Conn. Gas Coal and Coke Co.,	Pitts. and Conn. Gas Coal and Coke Co.,	do.
Deer Park,	Mahoning Coke Company, (limited,)	do.
Hill Farm,	Dunbar Furnace Company,	do.
Umpire,	John S. Cunningham & Co.,	do.
Washington Mines,	S. Coehran Sons & Co.,	do.
	James Garrow,	do.
Lemont,	Hogsett, Hanna & Co.,	do.
Carbon,	Mears Brothers,	Huntingdon,
Saltsburg Coal Company,	Saltsburg Coal Company,	Indiana,
Paneoast,	Reynoldsville Coal Company,	Jefferson,
Washington,	Frank Williams,	do.
Beaver,	Lee & Patterson,	Lawrence,
Clinton,	Clinton Coal Company.	do.
R. H. Peeble's Bank,	New Castle Railroad and Mining Co.,	do.
McIntyre,	McIntyre Coal Company,	Lycoming,
Buffalo Coal Company Mines,	Buffalo Coal Company,	McKean,
Home Bank,	Buhl, Westerman & Co.,	Mercer,
Crill's Coal Bank,	William Houston,	do.
Keystone Coal and Manufacturing Co.,	Keystone Coal and Manufacturing Co.,	Somerset,
The Balt. and Cumb. Coal Co., (limited,)	The Balt. and Cumb. Coal Co., (limited,)	do.
Cumberland and Elk Lick,	Cumberland and Elk Lick Coal Company,	do.
Cumberland,	J. N. Williams,	do.
Morris Run,	Morris Run Coal Mining Company,	Tioga,
Blossburg,	Blossburg Coal Company,	do.
Fall Brook,	Fall Brook Coal Company,	do.

BITUMINOUS—Continued.

IN WHAT YEAR OPENED.	Quantity of tons produced per annum.	Value of annual product.	Amount paid for material used in business.	Whole number of persons employed.	Amount paid annually for wages of employees.	Number of coke ovens.	Annual production of coke.
1856,	53,000	$55,000 00	$5,000 00	149	$46,000 00	21	
1865,	28,600	28,389 87	5,098 17	100	16,261 53	16	
1872,	38,000	38,000 00	2,500 00	61	21,000 00		
1870,	19,000	20,000 00		46	16,000 00		
	13,791	*7,000 00	3,840 00	*20	17,940 00		
1852,	72,273	69,386 00	3,563 40	124	56,679 00		
	108,000	127,635 00	15,000 00	187	77,000 00	8	2,000
1872,	12,171	43,815 78		146			
1854,	58,000	73,000 00	10,000 00	171	59,601 82		
1854,	60,000	100,000 00	15,000 00	150	87,000 00		
	32,121	44,213 02	14,578 75	112	27,830 91		
1870,	27,143	36,000 00		170	32,000 00		
1865,	3,928	50,000 00	2,000 00	171	39,250 00		
1874,	68,334	93,000 00	2,500 00	170	65,765 33		
				242			
				152			
1873,	30,000			83			
	221,767	160,000 00		316	135,000 00		
1876,	25,040	37,560 00	5,512 00	84		8	
	37,000	40,000 00	4,000 00	110	31,000 00		
1877,	56,904	35,000 00	2,000 00	155	20,000 00		
1860,	62,849	86,101 13	15,280 00	194	64,000 00		
1877,	30,000	21,000 00	500 00	64	14,700 00		
1857,	32,112	30,000 00	1,000 00	103	29,000 00	88	16,205
1872,	90,802			186	55,179 09	100	43,820
1874,	138,000		13,424 00	185	89,479 20		
1872,	75,000	500,000 00	5,000 00	234	75,000 00		
				35			
1873,	84,184	69,030 88	4,701 04	106	57,483 57		
1875,	21,400	14,637 00		31	9,849 00		
1860,	61,202	61,202 00		100		15	1,534
1873,	64,608	32,304 00		156			
1869,	50,000	50,000 00		160			
1875,	19,062	12,564 98	624 85	48	11,501 28		
1877,	90,828	86,286 60	3,600 00	223	72,474 05		
1879,	12,556	14,439 00	4,390 00	120	12,972 00		
1864,	77,829	105,744 00	15,000 00	135	55,430 27		
1871,	21,478	19,517 23	450 00	57	16,725 16		
1869,	24,000	16,500 00		95			
1850,	5,395	5,395 00	500 00	26	4,295 69		
				56		100	
1866,				61		63	24,000
1860,				55		100	
						156	†6,000
1874,	44,000	26,000 00		45		70	53,000
1876,		29,000 00		45	1,216 86	50	21,276
	119,973½		17,939 76	204	85,028 90	253	89,560
1872,	60,000	45,000 00	3,000 00	39	30,000 00	90	30,000
	66,500			59	17,000 00	89	36,400
	20,000	18,000 00	1,600 00	79	15,000 00		
1866,		17,400 00	1,200 00	18	10,410 00	35	12,000
1874,	55,348	46,246 00	800 00	30	1,080 00		
1873,	55,350	40,000 00	3,000 00	65	30,000 00	120	30,690
1871,	14,000	12,600 00	600 00	45	11,900 00		
1873,	64,000	64,000 00		112	33,591 04		
1874,	30,200		2,019 64	54	13,713 19		
1875,	19,120	15,987 11	1,824 99	26	10,875 60		
1866,	35,166	45,715 80	7,000 00	107	40,063 36		
1865,	8,486			49			
1872,	9,998	16,246 00		77			
1870,				454		2	
1875,	85,743			182	90,000 00		
1878,	8,000			77			
1869,	2,100	2,880 00	305 00	4	1,765 20		
1872,	50,000	45,000 00	4,000 00	70	35,000 00	7	
1878,	20,000	15,000 00	1,600 00	52	14,000 00		
1875,	63,120	41,028 00	3,429 79	80	31,759 98		
1877,	12,000			23			
1852,	280,000			597			
1866,				869		152	
1859,				135			

NAME OF COLLIERY.	BY WHOM OPERATED.	COUNTY.
Antrim,	Fall Brook Coal Company,	Tioga,
Midway Block,	G. W. Crawford,	Washington,
Enterprise,	V. Harding,	do.
Banner,	Gamble & Risher,	do.
Knob,	Knob Coal Company,	do.
	Richard Stockdale,	do.
	T. J. Wood,	do.
Shire Oaks,	Blackburn & Mort,	do.
Globe and Dexter,	Crowthers, Musgrave & Co.,	do.
Little Alps,	Crowthers, Musgrave & Co.,	do.
Allison's,	Jonathan Allison,	do.
White Ball,	Youghiogheny Coal Hollow Coal Co.,	Westmoreland,
	Southwest Coal Company, (limited,)	do.
Rising Sun Coke Works,	Markle & Co.,	do.
Buckeye,	John M. Cochran,	do.
	M. Saxman, junior, & Co.,	do.
Shafton,	Shafton Coal Company,	do.
Isabella Coke Works,	Isabella Furnace Company,	do.
Leechburg,	D. B. Ashbaugh, lessee,	do.
Westmoreland,	Westmoreland Coal Company,	do.
Ocean,	W. L. Scott & Co.,	do.
Union Coal Works,	Jacob Tomer,	do.
Coal Run shaft No. 1 & 2, and Yough. No. 4,	Penn Gas Coal Company,	do.
Millwood Coal and Coke,	Millwood Coal and Coke Company,	do.

BITUMINOUS—Continued.

IN WHAT YEAR OPENED.	Quantity of tons produced per annum.	Value of annual product.	Amount paid for material used in business.	Whole number of persons employed.	Amount paid annually for wages of employees.	Number of coke ovens.	Annual production of coke.
1872,	. . . . .	. . . . .	. . . . .	476			
1869,	15,000	$14,000 00	$1,000 00	103	$1,100 00		
1873,	10,500	12,300 00	300 00	34	10,000 00		
1878,	16,000	16,000 00	1,500 00	66	12,000 00		
1877,	16,284	14,004 24	701 32	55	11,500 90		
1875,	19,000	20,000 00	500 00	71	16,500 00		
1864,	20,000	15,000 00	. . . . .	42	13,125 00		
1872. 1873,	41,184	. . . . .	1,500 00	148	35,134 05		
. . . . .	9,000	10,800 00	200 00	39	6,500 00		
1860,	30,000	30,000 00	50,000 00	80	8,000 00	20	
1873,	. . . . .	. . . . .	. . . . .	50	. . . . .	45	1,200
1872,	29,600	29,600 00	2,216 00	45	20,448 95	70	29,600
1873,	. . . . .	40,150 00	2,000 00	47	23,100 00	100	33,277
1873,	40,000	30,000 00	1,000 00	61	18,000 00	30	
1865,	16,000	16,000 00	. . . . .	63			
1872,	90,000	70,000 00	6,000 00	141	62,000 00	200	50,000
1865,	48,000	48,000 00	8,000 00	102	33,000 00		
1856,	407,263	407,263 00	14,308 74	557	210,436 58		
1877,	100,000	125,000 00	3,508 65	150	49,522 29	30	
1871,	5,089	8,000 00	500 00	71	7,000 00		
1859 to 1879,	522,057	522,000 00	26,472 00	867	296,714 00		
1874,	50,832	47,865 60	4,755 82	105	31,865 19		

* Average. † Cars.

COAL, BITUMINOUS.—

NAME OF COLLIERY.	Hours worked per day.	Days in operation during the year.	Miners on contract.		Miners on wages.		Outside laborers.		Inside laborers.		Outside mechanics		Inside mech'cs.	
			Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
Mansfield Coal and Coke Company,	. .	200	. . .	. .	125	$1 50	3	$1 25	2	$2 00	3	$2 00	3	$2 00
Fort Pitt,	. .	200	7 80	**	. . .	. . .	8	1 40	2	1 40	4	1 90	1	1 50
Bower Hill,	. .	250	5 40	$1 25 1 75	. . .	. . .	4	. . .	2	. . .	2	. . .	1	. . .
Wood Coal Works,	. .	300	1 30	. . .	3	. . .	3	. . .	3	. . .	1	. . .	1	. . .
James Nimick,	. .	308	.	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. .	. . .
Enterprise,	. .	264 to 304	15 105	50 2 25	. . .	. . .	3 4	50 1 75	3	2 25	2	2 00	. .	. . .
Fair Haven,	. .	290	121	1 75	. . .	. .	34	1 15 to 1 67	. .	. . .	8	1 25 to 2 25	4	1 25
Street's Run Coal Works,	. .	114	7 110	‡03	. . .	. . .	13	2 25	2	2 00	1	2 75	1	2 00
Amity,	. .	138 to 290	10 117	‡02¾	. . .	. . .	3 13	1 00 1 50	. . .	. . .	5	1 75	2	2 25
Camden,	. .	170	. . .	. .	120	4 50	12	. . .	. . .	. . .	1	. .	1	. . .
Allequippa,	. .	102	. . .	. . .	80	‡03	3 12	1 00 2 00	2	2 25	2	2 50	1	2 50
Robbins & Jenkins,	. .	160 to 300	125	‡02 to 03	. . .	. . .	8	2 00	3 14	1 00 2 00	1	2 25	2	2 00
Youghiogheny,	. .	185	150	‡02¼ to 03	. . .		8	2 00 to 2 25	. .	. . .	1	2 25	. .	. . .
Hampton,	. .	225 to 250	150	. . .	. . .	. . .	3	1 50	2	1 75	2	2 00	. .	. . .
Sandy Creek,	. .	220	41 144	‡03½	. . .	. . .	6	1 35 to 1 70	3	1 50	6	1 50 to 2 25	2	1 90
	. .	117	116	. . .	. . .	. . .	14	1 50	. . .	. . .	4	2 25	2	2 00
Oak Ridge Mine,	. .	240	70	‡02¼ to 03½	. . .	. . .	1	1 25	1	1 10	1	1 50	1	1 50
	. .	300	15 50	‡03	. . .	. . .	. . .	. . .	2	1 75	. . .	. . .	1	3 00
Chess Pit,	. .	208 to 305	45 227	. . .	. . .	. . .	7 19	50 to 1 25 1 60 to 2 25	. . .	. . .	10	1 75 to 2 75	. .	. . .
Cherry,	. .	250	. . .	. . .	3 50	1 00 1 50	1 20	1 00 1 50	. . .	. . .	2	1 75	. .	. . .
Jefferson Coal Works,	. .	108	90	‖70	. . .	. . .	4	2 00	. . .	.	. . .	. . .	1	2 25
Osceola Coal Company,	. .	240	15 110	75	. . .	. . .	10	1 50	2	1 75	1	1 75	1	1 75
Enterprise,	. .	141 249	12 140	1 25 2 00	. .	. . .	3 12	1 50 2 25	5	2 25	1	2 50	1	2 50
Lane and Cambria,	. .	240	3 50	40	2	1 25	1	. . .	. . .	. . .	. . .	. . .	. .	. . .
Mount Equity,	. .	300	37	‖50	. . .	. . .	3	1 50	. . .	. . .	7	1 75	. .	. . .
Bennington Shaft,	. .	313	140	41	. . .	. . .	3 2	77 1 60	6	1 48	1	1 60	1	1 37
Carbon Run,	. .	119 to 313	130	2 50	2	1 71	1 3	95 1 14	4	1 24	3	1 83	2	1 64
Sonman,	. .	. . .	. . .	. . .	200	. . .	4	. . .	3	. .	1	. . .	. .	. . .
	. .	300	. .	. . .	10	1 25	. . .	. . .	. .	. . .	25	1 15		
Lloydsville,	. .	290	5 85	. . .	. . .	. . .	. . .	. . .	3	. .	. . .	. . .	. .	. . .
Ben's Creek,	. .	313	4 22	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. .	. . .

EMPLOYEES WAGES.

Outside mule drivers.		Inside mule drivers.		Weigh master.		Dumpers.		Mining overseers.		Coke drawers.		Boys.		Other employees.	
Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
1	$1 50	8	$1 50	1	$2 50	2	$1 25	1	$4 00						
. . .	. . . .	. . .	*04½	1	§50 00	. .	. . . .	1	§60 00	2	†$0 80				
. . .	. . . .	3	. . . .	1	. . . .	1	. . .	1	. . . .	. . .	. . . .	. . .	. .	1	
. . .	. . . .	2	. . . .	1	. . . .	1									
. . .	. . . .	2	1 50	. .	. . .	1	1 50	1	2 17						
. . .	. . . .	6	1 50	1	2 00	1	1 75	1	2 50	. . .	. . . .	1	$0 50		
2	1 00	7	1 00 to 1 25	2	1 75	5	1 15 and 1 25	2	2 00	. .	. . . .	. . .	. . .	1	
		1	1 75												
1	2 25	6	2 25	1	. . . .	. . .	. . . .	1	3 00	. . .	. . . .	. . .	. . .	3	$1 50 to 1 75
1	1 75	10	2 10	1	1 75	2	1 75	1	2 50	. . .	. . . .	. . .	. . .	7	2 00 to 2 25
. . .	. . . .	2	. . . .	1	. . . .	2	. . . .	1	. .						
		10													
. . .	. . . .	6	2 25	2	2 50	2	2 00	1	2 75	. .	. . . .	. . .	. . .	1	
2	1 00	8	2 00	1	2 25	2	2 00	1	2 25	. . .	. . . .	. . .	. . .	1	2 25
2	1 50														
. . .	. . . .	8	2 00	1	2 25	2	2 25	1	3 00						
. . .	. . . .	9	2 00	1	2 25	2	1 25	1	3 85						
3	1 15 to 2 50	19	2 30 to 2 60	1	2 25	2	1 35 1 70	1	2 75	. . .	. . . .	. . .	. . .	14	1 00 to 3 33
2	1 00	10	2 30	1	2 20	1	1 60	1	3 00						
1	2 30														
1	1 35	4	1 50 to 1 75	1	1 50	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . .	1	1 60
														1	1 75
. . .	. . . .	5	1 75	1	1 50	3	1 40	1	2 00						
1	2 00	. . .	. . . .	3	2 00 to 2 25	. .	. . . .	3	2 75	. . .	. . . .	. . .	. . .	1	3 33
2	1 75	3	1 50	1	2 00	1	2 00	1	2 50						
1	2 00	10	2 25	1	2 50	2	2 25	1	2 50						
. . .	. . .	12	1 50	1	1 75	1	2 00	1	2 00	. . .	. . . .	. .	. . .	1	
1	1 50	15	2 25	1	2 25	1	2 25	2	2 50						
1	. . . .	5	. . . .	1	. . . .	. .	. . . .	1							
. . .	. . . .	. . .	. . . .	1	1 75	1	1 75	1	§80 00	20	†70	. . .	. . .	30	1 37½ avr'ge
														3	60
. . .	. . . .	9	1 00	1	1 80	3	1 47	1	3 33	. . .	. . . .	5	50	1	1 82
		13	1 43				avr'ge								
2	67	9	1 00	1	1 90	4	1 28	2	3 25	. . .	. . . .	12	67	1	5 00
		6	1 38											2	1 38
														1	1 41
. . .	. . .	1	. . . .	2	. . . .	1	. . . .	2							
		16				4									
. . .	. . . .	9	1 45	1	1 80	2	1 22	1	3 00						
2	. . . .	2	. . . .	. . .	. . . .	. . .	. . . .	1							

COAL, BITUMINOUS.—

NAME OF COLLIERY.	Hours worked per day.	Days in operation during the year.	Miners on contract.		Miners on wages.		Outside laborers.		Inside laborers.		Outside mechanics		Inside mech'cs.	
			Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
Snow Shoe,	..	240	7 54	‖50	2	$2 00	7	$1 00	6	$1 25	1	$2 00	..	...
Fairmount,	..	313	5 110	75 ‖50	...	...	15	1 10	2	1 50	1	2 25	1	1 50
Catfish and Hillville.	..	313	140	‖60	...	...	8	1 40	...	...	...	...	..	...
Sligo Branch Coal Company,	..	254	2 32	30 ‖45	...	...	4	1 00	1	1 00	...	..	..	...
Daguscahonda,	..	250 to 300	15 150	‖45 o 55	3	1 50 to 1 65	3 20	50 to 75 1 20	5 3	50 1 35 to 1 75	5	1 50	..	...
Eureka.	..	134	24	...	69	‖50	14	1 25	...	...	7	1 50	..	...
St. Mary's,	..	308	...	...	1 10	‖45	1 3	50 1 35	3	1 50	1	2 25	..	...
Carondelet,	..	229	48	‖65	...	...	1	2 25	1	2 25	...	...	..	..
Turnbull & Hall,	..	...	80	2 00 to 2 50	...	...	3	2 00 to 2 50	...	...	2	2 00 to 2 50	..	...
Excelsior,	..	80	...	...	22	2 50	...		1	2 50	...	...	..	...
Spring Grove Coke Works	..	..	24	2 00	...	...	22	1 50	1	1 50	1	2 25	1	2 25
Jackson Mines,	..	300	30	2 00	...	...	20	1 50	2	2 00	1	2 25	1	2 50
Fayette,	..	...	24	2 00	...	...	22	1 50	1	1 50	1	2 25	1	2 25
Painter.														
Pennsville,	..	300	...	...	..	...	20	1 25	20	1 50	1	...	..	...
Eldorado,	..	300	..	...	18	1 50	16	1 25	2	1 25	2	1 25	..	...
Pittsburgh and Connellsville Gas Coal and Coke Company.	..	286	2 80	... ¶75	..	...	38	1 65	6	1 65	6	1 95	2	1 95
Deer Park,	..	275	31	1 75	...	...	4	1 25	...	...	..	...	.	...
Hill Farm,	..	300	..	...	4 30	1 00 2 00	1 1	80 1 25	1	1 65	1	1 90	..	...
Umpire,	..	120 to 150	35	‡2¼	30	..	5	...	..	...	...	...	1	...
Washington,	..	275	7	2 00	...	...	1	1 85	...	..	..	...	..	...
	..	234	...	...	20	1 75	2	1 75	3	1 75	1	1 75	1	1 75
Lemont,	..	290	2 37	1 00 1 50	...	...	...	...	...	...	1	1 50	1	1 50
Carbon,	..	216	3 36	75 1 70	...	...	1	1 55	...	...	1	1 75	..	...
Saltsburg Coal Company,	..	313	89	‖45	...	...	1	...	4	1 40	1	1 40	..	...
Pancoast,	..	278	6 35	...	...	...	4 1	90 ...	1	1 91	1	2 00	1	1 91
Washington,	..	300	2 16	...	..	...	2	1 40	1	1 75	...	...	..	...
Beaver,	..	234	80	1 75	...	...	7	1 25	2	1 75	2	2 00	2	2 50
Clinton,	..	230	40	2 35	...	...	2	1 25	1	1 50	...	...	.	...
R. H. Peebles' Bank,	..	208	60	...	...	...	7	1 25	3	1 25	4	...	...	...
McIntye,	..	260	13 240	...	...	...	3 90	65 1 15	20 6	50 to 88 1 30 to 1 45	10	1 30 to 2 20	5	1 50 to 2 00
Buffalo Coal Company's Mines,	..	260	10 135	... 1 87	...	...	14	1 18	...	...	3	1 75	2	1 50
Home Banks,	..	227	14 45	70 1 45	...	...	...	...	4	1 00 to 1 50	3	2 00 to 2 50	2	1 75
Crill's Coal Bank,	..	183 to 241	2	1 50	...	...	..	...	1	1 50	...	...	...	...
Keystone Coal and Manufacturing Company,	..	300	55	1 50	...	...	..	...	1	1 00	2	1 50	..	...
The Baltimore and Cumberland Coal Company, (Limited,)	..	295	40	1 25 to 2 00	...	...	2	1 25	2	1 20 to 1 30	1	1 50	..	...
Cumberland and Elk Lick Coal Company,	..	240	...	...	66	1 67	1	2 00	...	...	1	1 75	1	1 75
Cumberland,	..	...	20	1 25	...	...	...	...	...	...	...	...	...	...

EMPLOYEES WAGES—Continued.

Outside mule drivers.		Inside mule drivers.		Weigh-master.		Dumpers.		Mining overseers.		Coke drawers.		Boys.		Other employees.	
Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
. . .	. . . .	12	$1 25	2	$2 12	2	$1 00	1	$2 62	3	$1 25	3	$0 50		
3	$1 50	15	1 50	2	1 80	1	1 10	1							
. . .	. . .	6	1 40	2	1 65	2	1 40	2	1 90						
1	1 35	2	1 10	1	2 00	2	1 10	1	2 00	. . .	. . . .	. . .	. . .	1	$1 54
														1	§48 00
1	1 35	9	1 50	1	1 50	2	1 30	2	2 80	. . .	. . . .	. .	. . .	1	5 00
									3 50					1	2 00
														1	1 50
														1	1 33
1	75	1	1 15	1	2 00	1	1 00	1	2 25	. . .	. . . .	. .	. .	1	1 37
3	1 00	3	1 25	3	1 40	3	1 50	1	4 00	. . .	. . . .	1	60		
								3	2 50						
1	2 00	4	2 00	1	2 50	1	2 00								
. . .	. . . .	7	2 00	1	2 00	1	2 00	1	2 00						
			to		to		to		to						
			2 50		2 50		2 50		2 50						
. . .	. . . .	2	2 50	1	2 50										
2	2 00	3	2 00	. . .	. . . .	. . .	. . . .	1	2 50	. . .	. . . .	. . .	. .	1	4 00
. . .	. . . .	5	2 00	. . .	. . .	. . .	. . . .	1	2 50	. . .	. . . .	. . .	. .	1	4 60
1	2 00	3	2 00	. . .	. . . .	. .	. . . .	1	2 50	. . .	. . . .	. . .	. . .	1	4 00
. . .	. . . .	2	. . . .	. . .	. . . .	1	. . . .	1							
2	1 25	4	1 50	. . .	. . . .	. . .	. . . .	1							
. . .	. . . .	6	1 65	2	2 10	2	1 65	2	2 25	50	†60	. .	. .	8	2 00
															to
															3 33
. . .	. . . .	3	1 60	. . .	. . . .	. . .	. . . .	1	§80 00						
. . .	. . . .	. .	. . . .	1	1 45	1	1 25	1	§65 00	16	1 75	1	80	1	§125 00
3	. . . .	4	. . . .	1	Wages	paid	$1 50,	$1 75,	and	$2 25	per	day.	.		
1	1 85	1	1 85	. . .	. . . .	. . .	. . . .	1	2 50						
								1	1 85	6	1 80				
. . .	. . . .	2	1 00	1	1 75										
1	1 50	5	1 25	. . .	. . . .	1	1 25	1	1 75	16	1 50				
1	1 55	1	1 70	1	1 70	. . .	. . . .	1	2 25						
. . .	. . . .	6	1 40	1	§50 00	4	1 33	1	§70 00						
								1	75 00						
1	. . . .	3	1 50	1	§50 00	2	. . . .	1	§37 50						
. . .	. . . .	2	1 45	1	1 55	. .	. . . .	2	2 00						
1	80	9	1 30	1	1 25	2	1 25	1	3 00						
1	75	2	1 30	1	1 25	1	1 25	1	3 00						
. . .	. . . .	. . .	. . . .	1	1 50	1	1 50	1	2 00						
3	1 45	5	1 12	1	1 58	1	80	1	. . . .	. . .	. . . .	. . .	. . .	15	1 10
	to		to			13	1 20								to
	1 60		1 23												1 65
		28	1 45												
			to												
			1 60												
. . .	. . . .	9	1 44	1	. . . .	3	1 18	1	3 00	. . .	. . . .	. . .	. . .	1	2 00
														1	1 60
														2	1 50
. . .	. . . .	4	1 75	1	1 50	3	1 30	1	4 00						
. . .	. . . .	. . .	. . . .	. . .	. . . .	1	1 20								
. . .	. . . .	6	1 00	1	1 50	3	1 25	1	§70 00	. . .	. . . .	. . .	. . .	1	§150 00
1	50	3	1 25	1	1 30	1	1 25	1	2 50						
. . .	. . . .	6	1 25	1	1 50	3	1 25	1	4 00						
. . .	. . . .	1	. . . .	. . .	. . . .	2			.						

COAL, BITUMINOUS.—

NAME OF COLLIERY.	Hours worked per day.	Days in operation during the year.	Miners on contract.		Miners on wages.		Outside laborers.		Inside laborers.		Outside mechanics		Inside mech'cs.	
			Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
Morris Run,	..	208 to 308	137 252	...	...	...	65	$1 00 to 1 37½	17 17	$0 50 to 1 00 1 25 to 1 75	13	1 25 to 2 25	1	$1 75
Blossburg,	..	205	70 420	..	10	$1 80	7 133	80 to 1 00 1 25 to 1 75	7	1 46	10	1 80 to 2 25	8	1 80
Fall Brook,	..	200 250	63	...	1	1 80	15	1 12½	10 6	45 1 25	4	1 55	4	1 50
Antrim,	..	200 300	30 305	...	2	1 80	63	1 12½	13 5	45 1 25	6	1 55	4	1 50
Midway Block,	..	75	80	$1 35	...	...	4	...	2	...	1	..	2	..
Enterprise,	..	275	25	‡02½	...	...	1	1 25	...	...	1	1 25	..	...
Banner,	..	140	50	...	..	..	7	...	1	75	...	...	1	2 25
Knob,	..	142	11 34	...	...	...	1	1 00	...	...	...	...	..	...
	..	35	63	‡02½	...	...	1 2	1 00 2 25	...	...	...	...	..	...
	..	125	30	2 50	...	...	4	...	...	...	...	..	..	...
Shire Oaks,	..	111	76	2 75	...	...	7	2 00	1	2 25	1	2 00	..	...
Globe and Dexter,	..	198 to 250	...	...	20 110	...	4	2 00	...	..	...	..	2	2 50
Little Alps,	..	75												
Allison's,	..	150	...	..	30	1 50	4	1 25	1	1 50	...	...	..	...
White Ball,	..	100	10 50	55 1 25	...	...	5	..	4	...	1	...	..	...
	..	330	...	...	30	1 75	3 6	60 1 20	2	1 75	1	2 00	..	...
Rising Sun Coke Works,	..	298	...	...	20	‖2	1	1 25	...	...	5	1 50 to 2 50	..	...
Buckeye,	..	290	20	1 75	...	...	26	1 65	...	...	...	...	..	...
	.	200	...	...	46	2 00	6	1 50	2	1 75	...	...	..	...
Shafton,	..	...	6 45	‖40 to 50	...	..	3	1 25	...	..	2 3	2 00 1 60	..	...
Isabella Coke Works,	..	300	2 70	*	...	...	18	1 25	7	1 75	7	2 00	3	2 00
Leechburg,	..	250	10	1 00 to 1 10	...	...	1 7	1 10 2 00	1	1 50	1	1 75	1	1 75
Westmoreland,	..	...	70 439	‖60 1 30 to 1 80	...	...	31	1 10	10	1 35	7	1 50	5	1 50
Ocean,	..	232	10 120	...	...	...	4	1 25	3	1 50	2	1 70	..	...
Union Coal Works,	..	100	60	‡3	...	...	2	2 50	5	...	...	...	..	...
Coal Run, Shafts Nos. 1 and 2, and Youghiogheny, No. 4.		238	653	1 67	...	...	60	1 25	27	1 35	12	1 55	..	...
Millwood Coal and Coke,	..	200	75	1 25	...	...	8	1 25	...	..	2	1 50	1	1 25

* Price paid per wagon.
† Price paid per oven.
‡ Price paid per bushel.

EMPLOYEES WAGES.—Continued.

Outside mule drivers.		Inside mule drivers.		Weigh mas.er.		Dumpers.		Mining overseers.		Coke drawers.		Boys.		Other employees.	
Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
. . .	. . . .	56	$1 00 to 1 44	3	§§45 00 to 50 00	33	$1 25	3	§§45 00 to 100 00						
1	$1 25	15	1 50	2	2 45	59	1 40	1	. . . .	52	$1 50				
		71	1 84					3	2 45						
. . .	. . . .	8	1 00	2	§45 00	6	1 25	1	§75 00						
		14	1 35					1	125 00						
. . .	. . . .	14	1 00	2	§45 00	9	1 25	3	§45 00 to 125 00						
		20	1 35												
1	. . . .	5	. . . .	2	. . . .	. . .	. . . .	1	. . . .	. . .	. . . .	3	. . .	2	
. . .	. . . .	2	. . .	1	1 25	1	1 25	1	2 00	. . .	. . . .	. . .	. . .	1	$2 00
								1							
. . .	. . .	3	2 25	1	2 25	2	2 00	1	2 25						
. . .	. . . .	3	1 25	1	2 25	1	2 25	1	2 75	. . .	. . . .	1	$0 40	2	1 75
. . .	. . . .	3	2 25	1	2 25	. . .	. . . .	1	2 50						
1	. . . .	4	. .	1	. .	1	. . . .	1							
. . .	. . . .	5	2 00	1	2 00	. . .	. . . .	1	2 50						
2	. . . .	5	. . . .	3	2 00	2	2 00								
1	1 25	1	2 00	1	1 50	. . .	. . . .	1	1 50						
. . .	. . . .	5	. . .	1	. . .	2	. . . .	1							
								1							
1	75	1	75	. . .	. . .	1	1 50	1	2 00						
2	1 50	2	1 50												
. . .	. . . .	2	1 70	. . .	. . .	1 charger.	1 92	1	§75 00	12	†60	. . .	. .	2	†:0
								1	2 25						
. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	1	1 75						
. .	. . .	7	1 60												
. . .	. . . .	2	1 60	. .	. . . .	. . .	. . . .	1	5 00						
								1	2 00						
. . .	. . . .	6	1 65	. . .	. . . .	2	1 90	1	2 50	24	†65				
								1	4 00						
. . .	. . . .	6	1 30 and 1 60	1	1 75	1	1 50	2	1 60	. . .	. . . .	. .	. . .	1	§40 00
3	1 30	38	1 40	5	1 45	. . .	. . .	9	2 50 to 2 75	. . .	. . . .	6	55	4	1 50 to 3 00
. . .	. . . .	7	1 55	1	1 35	2	1 25	1	2 00						
1	2 00	2	2 00	. .	. .	. . .	. . . .	1	2 50						
. . .	. .	49	1 55	4	1 43	8	1 25	4	2 50	. . .	. . . .	24	70	12	1 87
														6	1 45
														6	‖56 00
														1	‖40 50
														1	‖135 00
. . .	. . . .	8	1 00	1	. . . .	. . .	. . . .	1	. . . .	. . .	. . . .	8	75	1	

‖ Price paid per ton.
§ Monthly wages.
¶ Price paid per hhd. bushel.

Under the head of other employés, are classed the following:

Civil and mechanical engineers, blacksmiths, sawyers, pumpers, checkmen, checkmen helpers, brakemen, engineers, hitchers-on, greasers, cagemen, trappers, caulkers, millers, farmers, clerks, teamsters, stablemen, watchmen, laborers.

Price of Mining per 100 Bushels at Fort Pitt Mines.

November, 1878,	$2 28
December, 1878,	2 28
January, 1879,	$2 28, 3 00
February, 1879,	2 66
March, 1879,	2 50
April, 1879,	Strike.
May, 1879,	Strike.
June, 1879, from 7th,	$2 28
July, 1879,	2 28
August, 1879,	2 28
September, 1879,	$2 28, 2 50
October, 1879,	2 50, 3 00

Highest rate, $3 00; lowest rate, $2 28; general average, $2 47.

Lost about 100 days in strikes during 1878–9.

RECAPITULATION.

The following tables are a recapitulation of the foregoing, showing the number and classification of employés, the average number of days employed, with average daily, yearly, and weekly earnings.

COUNTY.	Number of returns.	Average days employed.	Number of miners on contract.	Number of miners on wages.	Number of inside laborers.	Number of outside laborers.	Number of mechanics.	Boys.	Mining overseers and weigh masters.	Other employees.
Allegheny	23	220	2,055	178	202	262	84	213	51	32
Bedford	2	270	87	2	5	26	7	6	4	30
Blair	1	313	140	.....	19	5	2	17	2	1
Bradford	1	216	130	2	10	9	5	22	3	4
Cambria	4	301	107	200	34	13	26	9	7	
Centre	1	240	54	2	18	12	1	10	3	
Clarion	3	293	282	.....	26	36	2	7	9	1
Elk	3	239	174	182	19	48	13	25	12	5
Fayette	16	259	396	120	89	261	25	10	21	12
Huntingdon	1	216	36	.....	1	2	1	3	2	
Indiana	1	313	89	.....	10	8	1	1	3	
Jefferson	2	289	51	.....	7	6	2	8	5	
Lawrence	3	224	180	.....	17	22	8	.....	6	
Lycoming	1	260	240	.....	34	106	15	42	2	15
McKean	1	260	135	.....	9	17	5	10	2	4
Mercer	2	219	47	.....	9	4	5	14	2	
Somerset	4	275	115	66	19	13	5	.....	6	1
Tioga	4	234	1,040	13	196	436	50	321	21	
Washington	10	135½	358	160	36	46	8	16	21	5
Westmoreland	13	228	1,572	96	195	236	53	82	41	33
Total	96	.....	7,289	1,021	955	1,568	318	816	223	143
General average days	.....	250.2								

RECAPITULATION.

County.	Average Daily Wages.						Average days employed.	Average Earnings.													
								Yearly.						Weekly, (for 52 weeks.)							
	Miners on contract.	Miners on wages.	Inside and outside laborers.	Mechanics.	Boys.	Overseers and weighmaster and others.		Miners on contract.	Miners on wages	Inside and outside laborers.	Mechanics.	Boys.	Overs'rs, weighmen, and others	Miners on contract.	Miners on wages	Inside and outside laborers.	Mechanics.	Boys.	Overs'rs, weighmen and others	
Allegheny,	$2 09	$1 50	$1 82	$1 98	$ 88	$2 29	220	$459 80	$330 00	$400 40	$435 60	$193 60	$503 80	$8 84	$6 35	$7 70	$8 57	$3 72	$9 69		
Bedford,	1 75	1 25	1 62	1 75	40	2 50	270	472 50	337 50	437 40	472 59	108 00	675 00	9 09	6 49	8 41	9 09	2 07	13 00		
Blair,	1 65	. .	1 46	1 48	81	2 32	313	516 45	.	456 98	463 24	253 53	726 16	9 93	. . . .	8 78	8 91	4 87	13 96		
Bradford,	2 50	1 71	1 28	1 61	81	3 35	216	540 00	369 36	276 48	347 76	174 96	723 60	10 38	7 10	5 31	6 68	3 34	13 91		
Cambria,	. .	1 25	1 45	1 15	. . . .	3 00	301	. .	376 25	436 45	346 15	.	903 00	. . . .	7 23	8 39	6 65	. . . .	17 36		
Centre,	2 00	2 00	1 17	2 00	50	2 29	240	480 00	480 00	280 80	480 00	120 00	549 60	9 23	0 23	5 38	9 23	2 39	10 50		
Clarion,	1 63	. .	1 30	1 87½	62	1 88	293	477 59	. . . .	380 90	549 37	181 65	550 81	9 18	. .	7 32	10 56	3 49	10 59		
Elk,	1 75	1 55	1 29	1 55	50	2 54	239	418 25	370 45	308 32	370 45	119 50	607 06	8 04	7 12	5 93	7 12	2 30	11 67		
Fayette,	1 90	1 97	1 62	1 95	95	2 70	259	492 10	510 23	419 58	505 05	246 65	699 30	9 46	0 81	8 07	9 71	4 73	13 45		
Huntingdon,	1 70	. . . .	1 60	1 70	75	1 97	210	367 20	. . . .	345 60	367 20	162 00	425 52	7 06	. . . .	6 64	7 06	3 11	8 18		
Indiana,	1 55	. . . .	1 27	1 49	. . . .	2 35	313	485 15	. . . .	397 51	438 20	. . . .	735 55	9 33	. . . .	7 64	8 42	. . . .	14 14		
Jefferson,	. .	. . . .	1 54	1 95	. . .	1 83	284	. .	. . . .	437 36	553 80	. . . .	519 72	. . .	. . . .	8 41	10 65	. . . .	9 99		
Lawrence,	1 95	. . . .	1 31	2 25	77	2 00	224	436 80	. . . .	293 44	504 00	172 48	418 00	8 40	. . . .	5 64	9 69	3 32	8 62		
Lycoming,	. .	. . . .	1 25	1 56	77	1 58	260	. . . .	. . . .	325 00	405 60	200 20	410 80	. . . .	. . . .	6 25	7 80	3 85	7 86		
McKean,	1 87	. . . .	1 27	1 67	. . . .	3 00	260	486 20	. . . .	330 20	434 20	. . .	780 00	9 35	. . . .	6 35	8 35	. . . .	15 00		
Mercer,	1 45	. . . .	1 43	2 05	70	2 75	219	317 55	. . . .	313 17	448 95	153 30	602 25	5 15	. . . .	5 06	8 61	2 95	11 58		
Somerset,	1 50	1 67	1 21	1 60	50	2 80	275	412 50	459 25	332 75	440 00	137 50	750 00	7 92	8 83	6 40	8 46	2 64	14 42		
Tioga,	. . . .	1 80	1 37	1 73	63	2 59	234	. . . .	421 20	320 58	404 82	147 42	606 06	. . . .	8 10	6 16	7 78	2 85	11 65		
Washington,	2 00	1 50	1 77	2 10	. . . .	2 08	135½	271 00	203 25	239 83	284 55	. . . .	281 84	5 21	3 91	4 61	5 47	. . . .	5 42		
Westmoreland,	1 62	1 90	1 10	1 70	68	1 94	228	369 36	433 20	310 20	387 60	155 04	442 32	7 10	8 33	6 14	7 45	2 98	8 50		

BLOOMARIES.

The bloomary, sometimes called the *open fire* or *hearth fineries*, is the first progressive step that we have any history of in the art of producing malleable or wrought iron. Of the antiquity of this process, there is no doubt, as "Egyptian sculpture, (dated fifteen hundred years before the Christian era,) represents smiths working at a forge, which is provided with two simple leather bellows, worked by the pressure of the men's feet for the exhaust, and inflated by strings pulled by hand." Previous to the introduction of the blast furnace, for the making of pig metal or cast iron, which may be said to be a modern innovation, wrought iron was made directly from the ore, with charcoal for fuel. The present bloomary fire is a shallow, rectangular hearth, whose sides and bottom are formed of cast iron plates, which are protected from the action of the fire by a lining made from charcoal dust. The fuel used is charcoal, and the fire is urged by a blast of cold, or sometimes heated, air, introduced through an inclined tuyere, placed on one of the sides close to the top of the hearth. The metal, or wrought-iron scrap, as the case may be, is charged on top of the fire, the fusion of which is allowed to take place very gradually, so that it may be exposed as fully as possible to the oxidizing influence of the blast, by falling in single drops through the entire height or depth of the hearth. The iron has to be broken up, and the imperfectly refined masses has to be lifted up from the bottom of the hearth to the tuyere, in order to subject them afresh to the joint influences of the blast and slag—which has been formed—as often as possible, until the carbon is almost entirely removed. The fusibility of the mass diminishes as the decarburization progresses, finally a spongy mass, or ball of wrought iron, is obtained, and is taken to a large hammer, worked by water or steam power, and reduced to a rough shape called, a *slab* or *bloom*. It is then re-heated in another furnace, to be hammered or rolled into finished iron. The iron thus produced is classed as the best, and is chiefly used for boiler plates and crucible steel.

The manufacture of iron in the United States dates back almost contemporaneous with the first settlement at Jamestown, Virginia, in 1607, as we find that iron-works and glass-works were erected there in 1620, which was afterwards destroyed, in 1622, by Indians, who massacred their families to the number of three hundred and forty-seven, none escaping but one boy and girl. The enterprise was then abandoned, and not revived again in Virginia for nearly a century later, the settlers devoting their time more to the cultivation of tobacco than to any other pursuit.

Iron-works for the manufacture of east iron were erected at Braintree and Linn, Massachussetts, as early as 1648 or 1649. But to Raynham now a part of Taunton, Massachussetts, is accredited the honor of the first bloomary put in operation in the colonies. From a description of Raynham, by the Reverend Doctor Fobes, in 1793, as related in "Bishop's History of American Manufacture," from which we glean our information for the historical portion of this sketch, "the first adventurers from England to this country who were skilled in the forge iron manufacture, were two brothers, viz: James and Henry Leonard. They came to this town (Raynham) in the year 1652, which was about two years after the first settlers had planted themselves upon this spot; and in the year 1652, these Leonards here built the first forge in America. Henry not long after moved from this place to the Jerseys, and settled there. James, who was the progenitor, from whom the whole race of Leonards here sprang, lived and died in this town. He came from Poutypool, Monmouthshire, and brought with him his son Thomas, then a small boy, who afterwards worked at the bloomary art with his father in the forge. The forge was situated on the great road, and having been repaired from generation to generation, it is still to this day in employ." "In the distance of one mile and a quarter from this forge is a place called the Fishing Pond, on the northerly side of which stood King Phillip's house. It was called Phillip's hunting house, because in the season most favorable for hunting he resided there, but spent the winter chiefly at Mount Hope, probably for the benefit of fish. Phillip and these Leonards, it seems, long lived in good neighborhood, and traded with each other; and such was Phillip's friendship, that as soon as the war broke out, which was in 1675, he gave out strict orders to all his Indians never to hurt the Leonards. During the war, two houses near the forge were constantly garrisoned. One of them was built by James Leonard, long before Phillip's war. This house still remains in its original Gothic form, and is now inhabited together, with the same paternal spot, by Leonards of the sixth generation." Respecting the Leonards, he further remarks: "The circumstance of a family attachment to the iron manufacture is so well known as to render it a common observation in this part of the country viz: '*Where you can find iron-works, there you will find a Leonard.*'" Henry, as before stated, went to the Jerseys "and was one of the first who set up iron-works in that State."

Coventry forge, Coventry township, Chester county, is reputed as having manufactured the first iron in Pennsylvania. This bloomary was built by a person named Nutt, and put in operation about the year 1720. The manufacture of iron was carried on there after the Revolution, by Colonel Phillip Benner, who subsequently built the first forge in Centre county. A forge is also mentioned in 1719 and 1720 at Manatawny, then in Philadelphia, but now in Berks or Montgomery county. The first iron-works in Lancaster county, which was set off from Chester county about 1720, is supposed to be built by a person named Kurtz, in 1726. The en-

terprising family of Grubbs commenced operations in 1728, having built Hopewell forge, and a number of blast furnaces. "The books of Hopewell forge, preserved since the year 1765, exhibit, it is said, an accurate knowledge of the business, and an economy of management and productiveness, which compare favorably with its present results." Speedwell forge—six miles from Litiz, Lancaster county—now abandoned, was built in 1750, and one in Martic township in 1755. Windsor forge, on the Conestoga, twenty miles north-east of Lancaster, was built in 1745, and several others on same stream in the next fifty years. Poole forge, near the Speedwell, in 1760, and Spring forge, three miles from the former, in 1793. Brooke forge, on the Pequea, and New Market forge of Lebanon county, dates from 1795. Glasgow forge, just within Berks county, was built in 1750, and Green Lane forge, twenty miles north of Norristown, on the Perkiomen, was built in 1733, and others were built on the same river before the Revolution. The Oley charcoal furnace and Oley forge, near Princeton were built, the furnace in 1770, and the forge in 1780, and Mount Pleasant forge in 1799. Two bloomary forges were built in Rockland township, Berks county, one in 1788, and the other in 1790, and two forges on Pine creek, in Pike township, built in 1799 and 1800. Berks county had six furnaces and as many forges in 1798. The ancient forge in Chester county, at the entrance of the Valley creek into the Schuylkill, which gave the name of Valley Forge to the memorable glen, around which Washington established his winter quarters in the darkest period of the Revolution, was erected some time prior to the year 1757, by Stephen Evans, whose executors that year sold it to John Potts, the founder of Pottstown. There were six forges in Chester county, previous to 1800, and quite a number through other counties further west and north.

In 1784, in England, Henry Cort invented the verberatory furnace and rolling-mill, which commenced a revolution in the manufacture of iron, the puddling furnace supplanting the bloomary fire, as the rolls supplanted the tilt hammer in reducing the iron into different shapes and sizes. At present there are about thirty-six bloomaries in Pennsylvania, with annual capacity of forty thousand tons, while the total number of bloomaries in the United States is fifty-eight, with capacity of sixty-five thousand tons per annum.

We forwarded circulars to forty forges, four of which we learn have been abandoned since 1874, only nineteen returned, including the abandoned and idle forges.

The following Table enumerates the Blomaries manufacturing Blooms from pig iron and scrap in Pennsylvania:

NAME OF FORGE.	BY WHOM OPERATED.	COUNTY.	In what year built.	Number of refineries or run-outs.	Number of nobbling fires.	Number of puddling furnaces.	Number of heating furnaces.	Number of hammers.	Number of persons employed at present.	When running full capacity, how many persons do you employ.	Annual capacity in tons.	Value of annual product.	REMARKS.
Gibraltar Iron Works,	S. Seyfert & Co.,	Berks,		1				2	9		1,000		
Gibraltar,	S. Seyfert & Co.,	do.	1777	1	2		1	1	7	7	500	$35,000	
Charming,	W. & B. F. Taylor,	do.	Before 1770	1	5			2	13	13	1,000		
Exeter,	Morgan J. Althouse,	do.	1836		3			1					No report.
Cove,	John Royer,	Blair,	1811	2	3			1	37	40	600	48,000	
Mount Airy,	Thomas E. Williams,	Berks,	1840	1	2			1					No report.
Schuylkill Steam,	B. F. Morret, (Lessee,)	do.	1878	1	8			1	46		3,900	280,000	No report.
Franklin,	James Gardner,	Blair,			4						900		No report.
Mount Etna,	Samuel Isett,	do.	1808		4			1					No report.
Tyrone,	Lyon, Shorb & Co.,	do.	1809 and 1870		12			1					No report.
Bellefonte,	Valentines & Co.,	Centre,	1810	1	12		1	1	70	70	2,500	175,000	
Eagle,	Curtins & Co.,	do.	1810		8			1	20	20	1,500		
Milesburg Iron Works,	McCoy & Linn,	do.	1830		7			1					No report.
French Creek,	Esther Kaufman,	Chester,	1872		4			1					No report.
Mary Ann,		do.	1785		3			1			720		No report.
Ringwood,	Thomas J. Bailey,	do.		1	3								No report.
Sadsbury,	Charles Goodman & Bro.,	do.	1820	1	3			1					No report.
Springton,	Cornog & McIlvaine,	do.	1790	1	4								No report.
Washington,		Clinton,											No report.
Mainville,	C. E. Pennock & Co.,	Columbia,	1825	1	3			2			600	40,000	
Carlisle Iron Works,	C. W. Ahl & Son,	Cumberland,	1776	1	5			1	20	20	1,860	139,500	
Liberty,	Mumma & Boyer,	do.	1830		4			1	6		500		
Laurel,	South Mountain Mining and Iron Co.,	do.	1830		6			1			1,500		No report.
Mont Alto,	Mont Alto Iron Company,	Franklin,	1866	1	7			1			2,000		No report.
Barree,	Eichelberger & Sons,	Huntingdon,	1785		4			1			900		No report.
Coleraine,	Shorb, Stewart & Co.,	do.	1805		7								Abandoned since 1874.
Maria,	G. W. Smith,	Blair,			4			1			900		No report.
Juniata,	J. R. Hunter & Co.,	Huntingdon,			4			1			800		Idle for several years.
Juniata Iron Works,	Samuel Hatfield,	do.	1837	1	4	3					1,700		Idle since 1875.
Colmanville,	Edmund Smith,	Lancaster,	1828		4			1			500		No report.

Martic,	Davis & Potts,	Lancaster,	1755	1	4			2			800		
Union,	J. & R. Melly,	Lebanon,		1	5			1	17	40	1,500	75,000	No report.
New Market,	Samuel K. Wanner,	do.		1	5			1	14	28	1,400	35,000	
Cove,	William McIlvaine & Sons,	Perry,	1865	1	5			1	16	18	600	48,000	
Perry,	Seidel Brothers,	do.	1862	1	5			1			1,500		No report.
Ellwood,	J. B. Seidel,	Schuylkill,	1863	1	4						1,250		No report.
Castle Fin,	James K. Brown,	York,	1835	1	4			2			1,000		Idle since 1874.
Ellendale,	Killinger, Kaufman & Co.,	Dauphin,	1872	1	5			1			1,200		No report.
Exeter, (Steam,)	R. B. Seidel,	Berks,	1865		1			1	5	12	150	9,000	
North Kiln,	M. B. Seyfert & Co.,	do.	1827	1				1	20	50	600		

BLOOMARIES.—

NAME OF FORGE.	Weeks in operation during the year.	Refinery men, or run outs.		Nobblers.		Hammermen.		Helpers at hammer.		Heaters.	
		Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
Gibraltar,	26	1	*$1 10	6	*$5 00	...	...	...	...	...	...
Gibraltar,	37	1	*1 00	4	*5 00	...	...	...	...	...	...
Charming,	45	1	*85	10	*5 00	...	...	...	...	...	...
Cove, (Blair county,)	26 to 40	1	†1 80	4	†1 80	...	...	...	...	...	...
Bellefonte,	50	4	†2 50	24	†2 40	2	†$3 00	...	...	...	...
Eagle,	40	...	...	16	*5 00	2	*1 00	...	...	...	...
Mainville,	20	2	*85	4	*4 00	...	...	...	...	...	...
Carlisle Iron Works,	....	4	*55	12	*4 75	...	...	...	...	...	...
Liberty,	17	1	*90	3	*5 00	1	*80	...	...	...	...
Union,	....	...	...	8	*4 00	1	*60	...	...	...	...
New Market,	20	1	†4 50	10	†3 75	..	...	...	...	...	...
Cove, (Perry county,)	30	1	*1 00	8	*5 00	...	...	...	...	...	...
Exeter, (steam,)	40	...	...	1	*5 00	...	...	...	...	1	...
Schuylkill, (steam,)	48	2	*90	24	*4 65	2	*60	2	1 25	...	...

*Per ton. †Per day. ‡Per month.

Employees' Wages.

Helpers.		Engineers.		Blacksmiths		Machinists.		Carpenters.		Laborers.		Boys.		Other employees.	
Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
1	$*0 35	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	1					
1	. . . .	. . .	. . . .	1	$1 50										
1	40	. . .	. . .	1	1 00										
2	1 25	. . .	. . . .	1	1 75	. . .	. . . .	. . .	. . . .	13	$1 00	2	$0 40	1	$1 33
										14	95		to	1	1 65
													50	1	2 50
. .	. . . .	2	$2 00	. . .	. . . .	. . .	. . . .	. . .	. . . .	4	. . .	. . .	. . .	34	1 25
. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . .	. .	. . . .	2	*25				
											65				
. . .	. . . .	. . .	. . . .	. .	. . . .	. . .	. . . .	. . .	. . . .	2	90				
											and				
											1 00				
. . .	. . . .	. . .	. . . .	1	1 00	. . .	. . . .	1	1 25	50	80				
. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. .	. . . .	. . .	. . . .	1	*35	1	‡25 00
. . .	. . . .	. . .	. . .	1	1 40	. . .	. . . .	1	1 50	3	1 00	3	50		
. . .	. . . .	. . .	. . . .	1	1 50	. . .	. . . .	1	1 10	1	1 00				
1	*45	1	*66	1	2 00	. . .	. . . .	. . .	. . . .	3	90	. . .	. . .	1	‡50 00
											1 00				
1	†1 25	1	†1 50	. . .	. . . .	. . .	. . .	. . .	. . . .	1	1 00				
4	*35	2	1 65	1	1 35	. . .	. . . .	. . .	. . . .	7	1 25	2	80		

The following was returned from Cove Forge, Blair county. The blank is accompanied with quite an interesting sketch of the operations of the forge for four stated periods during the past twenty-two years, and is published in full. In the absence of better facilities being afforded by the State to gather information upon this and kindred subjects, this example, if followed by the proprietors of other industrial establishments, would be the means of giving to the public much valuable and interesting information:

Comparative Statement of Operations at Cove Forge, Blair County, Pennsylvania, 1857, 1863, 1871, and 1879.

CLASSIFICATION.	Number of men employed.	Number of boys employed.	Actual daily wages paid men.	Average daily wages of forgemen and run-out man, for every day of the year.	Time in operation during the year.	REMARKS.
Manager,	1		$2 50		12 mos.	Three forge fires in operation and one run-out.
Clerk,	1		1 25		12 mos.	
Forgemen,	6		2 10	$1 50	270 days.	Run-out men are paid $1 50 per ton on amount made.
Run-out man,	1		3 00	2 25	270 days.	
Helper,	1		1 75	1 50	270 days.	Forgemen $6 per ton on every ton per fire.
Coal stocker,	1		1 00		12 mos.	
Teamsters,	2		1 00		12 mos.	Forgemen never work on Saturday.
Blacksmith,	1		1 25		12 mos.	
Collier,	1		1 50		6 mos.	Wood choppers are paid 37½ cents per cord.
Helper,	1		1 00		6 mos.	
Laborers,	9		90		12 mos.	Wages of forgemen and run-out men depend altogether on the time in operation, the number of loops to a fire, and kind and weight of iron made.
Boys,		5	75		3 mos.	
Wood choppers,	7		1 00		4 mos.	

This table indicates the wages of forgemen and run-out men for the actual days worked, and average daily wages for every day in the year.

Product turned out during 1857, 543 tons. Value, $43,000.

Whole number of persons employed, 37.

Forgemen and other hands are furnished with dwelling-house, one half acre of ground, and free access to the fruit orchards, with other privileges, which makes laborer's wages (90 cents and $1 00) equivalent to $1 15 to $1 25, others in proportion.

Operations during 1863.

Classification.	Number of men employed.	Number of boys employed.	Actual daily wages paid men.	Average daily wages of forgemen and run-out man for every day of the year.	Time in operation.	Remarks.
Manager,	1		$2 50		12 mos.	Same number fires as before given.
Clerk,	1		1 25		12 mos.	Run-out men were paid $2 per ton.
Forgemen,	6		2 75	2 00	9 mos. & over.	Forgemen, $7 50 per ton.
Run-out man,	1		4 25	3 25	9 mos. & over.	Ten loops to the fire. Iron heavier.
Helper,	1		2 12	1 62	9 mos. & over.	Helper at run-out was paid $1.
Coal stocker,	1		1 00		12 mos.	Choppers were paid 35 to 40 cents per cord.
Teamsters,	2		1 00		12 mos.	
Blacksmith,	1		1 50		12 mos.	Circumstances after the beginning of our civil war were such that the manufacture of iron as a branch of industry was completely revived, and continued until 1872, when good iron was not wanted to any extent, parties substituting inferior grades of iron, for merchants' and other manufacture.
Collier,	1		1 65		6 mos.	
Helper,	1		1 15		6 mos.	
Carpenter,	1		1 25		12 mos.	
Laborers,	7		1 00		12 mos.	
Boys,		2	60		4 mos.	
Choppers,	8		1 00		4 mos.	

Product, 1863, 600 tons. Value, $75,000.
Whole number of persons employed, 34.

Operations during 1871.

CLASSIFICATION.	Number of men employed.	Number of boys employed.	Actual daily wages paid men.	Average daily wages of forgemen and run-out man for every day of the year.	Time in operation.	REMARKS.
Manager,	1		$2 50		12 mos.	Same number fires as in 1863.
Clerk,	1		1 33		12 mos.	
Forgemen,	6		2 38	$1 52	230 days.	Run-out men are paid $1 75 per ton.
Run-out man,	1		3 57	2 30	230 days.	
Helper,	1		2 00	1 30	230 days.	Forgemen are paid $7 00 per ton.
Coal stocker,	1		1 15		12 mos.	
Teamsters,	2		1 25		12 mos.	6 to 8 and 10 loops to fire.
Blacksmith,	1		1 75		12 mos.	
Collier,	1		1 75		6 mos.	Helper at run-out, $1 per ton.
Helper,	1		1 25		12 mos.	
Laborers,	10		1 05		12 mos.	
Boys,		3	50		4 mos.	
Choppers,	7		1 00		4 mos.	

Product, 475 tons. Value, $47,000.

Whole number of men employed, 36.

Operations during 1879.

CLASSIFICATION.	Number of men employed.	Number of boys employed.	Actual daily wages paid men.	Average daily wages made by forgemen and run-out man for every day in the year.	Time in operation.	REMARKS.
Manager,	1		$2 50		12 mos.	Forgemen are paid $6 per ton.
Clerk,	1		1 33		12 mos.	Run-out men $1 50 per ton.
Forgemen,	4		1 80	nearly $1 20	240 days.	In addition to the $1 20 daily average, the run-out men and forgemen made at other work an average of ten per cent.
Run-out man,	1		1 80	1 20	240 days.	
Helper,	1		1 25	95	240 days.	The helper was paid for other work, making his average for year 95 cts.
Coal stocker,	1		1 00		12 mos.	
Teamsters,	2		1 00			Coal stocker was engaged at other work when the forge was standing.
Blacksmith,	1		1 75			
Collier,	1		1 65			
Helper,	1		1 15			
Laborers,	14		95			
Boys,		2	50			
Choppers,	10		1 00			

Product, 289 tons. Value, $17,000.

Whole number of men employed, 40 to 45.

I employ 4 farmers and 1 miller, who are not mentioned in above operations. To these men we pay from $350 to $375 per annum, with usual privileges of men taking charge of farms.

The above product was put at $17,000, being several prices during the year, but since November 1, and now, the same product is worth $22,000 to $23,000.

We have never experienced any strikes or troubles with employés in settlement of their accounts or otherwise. Employés have always lived peacefully and with due respect to their employer, therefore my theory or opinion as to the settlement of such disputes—or, practically speaking, I can give you no views that would answer as an expedient or suitable means to accomplish much good, as experience only fits employers to satisfactorily answer questions of such import. However, I would add that having had no experience in such trouble is something worthy of note, as the majority are continually annoyed in this way, and I would add, without hesitancy, that this unusual feature is solely attributed to a sober, intelligent, and industrious lot of men engaged. We have men who were here as long as forty years, and others raised here. The majority are church-going people, and all opposed to intemperance, and the consequence is that such hands have always earned money, and, to-day, some of them own good farms and others from $2,000 to $5,000, all accomplished by industry and good management.

Cove forge is on the Frankstown branch of the Juniata river, in Blair county, two miles north-east of Williamsburg; was built in 1810 by John Royer, who was born in Franklin county in 1779, was a clerk at Chamber's iron works, in that county, was subsequently engaged at Logan furnace, and in 1808 commenced to build "Cove Forge." After a checkered experience, including an honorable record as a member of the lower branch of the State Legislature, first from Huntingdon county and afterwards from Cambria county, died at Johnstown in 1850. Springfield furnace, Blair county, was built by John Royer and his brother Daniel, in 1815, being the third furnace now in Blair county. Springfield furnace and Cove forge are now owned by John Royer, son of Daniel, he and George Schmucker having purchased the same of John and Daniel Royer, senior, in 1818, and was operated by Royer and Schmucker until 1855, when Schmucker sold his entire interest to John Royer, junior, who has successfully operated the same until now, running through both panics, with a considerable loss but not to that extent impelling suspension further than two men in 1878. I might add that such success is evidently rare, and is due to careful managers, who, together with their *employer*, have always carefully considered every operation, and to-day iron having advanced considerably, is certainly a great relief to iron-men and a pleasure to employés, as a panic of much longer duration would have certainly compelled abandonment. Hon. A. McAllister and Samuel R. Schmucker to whom is due the successful operations of these two places, as their managers, have always exercised care

and good judgment in the selection of hands who were sober, industrious men, and both pronounce this statement sufficiently accurate as a practical and successful experience in operating forges and furnaces. Cove forge blooms are made from charcoal pig metal turned out at Springfield furnace, and throughout these many years has always proven to be strictly uniform No. 1 charcoal blooms, and when good iron is needed are always in ready demand, at fair prices.

F. R. SCHMUCKER,
For JOHN ROYER.

BLAST FURNACES.

The close of 1879 presented one of the most remarkable years in the history of iron production in this country. The year opened with business fully as dull as had characterized the immediate preceding years. A large number of blast furnaces in the State were lying idle, the machinery and plant going to destruction. Some were dismantled during the previous years, and the iron of every description connected with them broken up and sold as scrap. Towards the middle of the year, there was a perceptible re-action set in, prices began to advance, and as they did fires were re-lighted, wheels began to rumble, labor was gladdened, until the close of the year witnessed nearly every furnace in the State in blast, or making hasty preparations to do so. Mr. Swank, Secretary of the Iron and Steel Association, estimated that the "entire production of pig-iron in the country during the year, at 2,800,000 gross tons, against 2,300,000 in 1878, which is within two per cent. of the heaviest years ever known in the history of the trade." The following table shows the comparative differences in the prices of pig-iron, December 31, 1878, and that of December 31, 1879, as taken from "*American Manufacturer:*"

	December 31, 1878.	December 31, 1879.
Bessemer pig,	$20 00	$40 00@$41 00
No. 1 foundry, bit,	$19 00@ 21 00	35 00@ 38 00
Mill, red-short,	18 00@ 19 50	35 00@ 38 00
Mill, neutral,	16 50@ 17 00	34 00@ 35 00
Old rails,	22 00@ 23 00	41 00@ 43 00
Bar iron, (card,)	1 75	3 50
Nails, per keg,	2 15	4 25
Steel rails,	44 00	70 00@ 72 50

All the improvement in prices occurred between the 1st of June, 1879, and the close of the year.

As iron advanced, the price of labor, as a rule, advanced also. The greatest proportion of returns received by the Bureau from blast furnaces, give, we presume, the wages existing at the date of return, which was about or immediately after the close of the year, and which is from five to ten per cent. of an advance upon prices paid during the first and second quarter.

The following article, taken from the "*Iron Age*," gives an interesting review of the last year's trade in pig iron:

"The iron trade during the past year has been one of extraordinary im-

provement. During the first six months the appreciation in values was slow, but every advance was maintained. The total decline in 1878 was recovered in the first six months of the present year, while the advance since then has been no less than $12@$14 per ton. During the month of July, prices began to harden a little, showing at the close an advance of about $1 50, the price of No. 1 foundry being at that time $20 50 per ton. During August, the market gained further, until $23 was the quotation, first week in September. From that time the advance was very rapid, and the quotation on October 2, was $31, a clear gain of $10 per ton in five weeks. Prices remained steady during the greater portion of the month, but during November, the market was quite unsettled, and some parties, under an apprehension of a serious decline, forced sales of foundry iron at a reduction of from $3@$6 per ton. Forge iron, however, was more firmly held, and several of the leading companies made no change whatever, although some parties made concessions of from $2@$3 per ton. Early in December it became evident that the demand for iron was in excess of the supply, and as consumers found their requirements increasing, heavy purchases became with many a matter of necessity. This naturally gave fresh strength to the market, and prices quickly reacted, until at the close of the year quotations are higher, by at least $2 per ton, than at any time within the period under review. It is difficult to say anything in regard to the future, but the fact of the work-shops in all parts of the country being full to overflowing with work, seems to insure a continued heavy consumption of iron. The impression is general that prices of pig metal will show another heavy advance before the 1st of May, and if the revival in Europe is at all in proportion to what it is here, there can be little doubt that the appreciation in values during 1880 will equal, if not outrun, that of the year now closing. Fears are expressed, however, that 'the thing will be overdone,' and ultimately there is no doubt that it will be overdone; but in the meantime, parties who have heavy contaacts on hand, and others of a profitable character in prospect, are not going to be restrained from purchasing to cover their requirements, on the ground that by so doing they assist in forcing up high prices. For the present this appears to be the actual condition of affairs, and although consumers are now buying twice and three times as much for forward delivery as they did during the past two years, it is simply because their requirements are proportionately heavier. This has been their experience during 1879, and will, no doubt, be repeated during 1880. The same may be said in regard to finished iron in all its forms."

From the "*Pittsburgh Commercial Gazette*," we quote the following interesting review of the iron trade of that great industrial city for 1879:

"The range of the advance is shown in the following table of prices of the various grades of iron on the 1st of January, 1879, and on the 1st of January, 1880:

	January 1, 1879.	January 1, 1880.
Bituminous foundry,	$18 50@20 00	$40 00@41 00
Mill irons,	17 50@10 50	37 00@40 00
Coke foundry,	17 00@14 00	35 00@30 00
Coke mill irons,	16 00@16 50	32 00@35 00
Bessemer pig, No. 1,	19 50@20 00	39 00@40 00
Anthracite foundry,	18 00@19 00	35 00@38 00
Anthracite mill,	17 00@18 50	31 00@33 00
Old rails,	23 50@24 00	38 00@40 00
Bar iron,	1 65@1 25 card.	3½ card.
Nails, per keg,	2 10@ 2 15	4 25
Steel rails,	43 50@44 00	70 00@72 50
No. 1 wrought scrap,	21 00@22 00	38 00@40 00
Old car wheels,	18 50@19 50	33 00@35 00
Horse and mule shoes,	2 50@ 3 50	4 00@ 5 00
Railroad spikes,	2¼@ 2½ c.	3½c.

Receipts of Raw Iron.

The receipts of raw iron furnish the most reliable statistical indication of the volume of the iron, and from figures given below, it will be seen that the volume of these receipts has been larger during the past year, than ever before. The grand total of receipts of metal, ore, scrap, and blooms, is 680,487 tons, which exceeds the previously unequaled total of 1873, by nearly 50,000 tons, is nearly 150,000 tons in excess of any other year, and shows a gain of over 200,000 tons on the total for 1878. Two things are noticeable in comparing these figures with previous years. The first is the large increase in the proportion of ore used in Pittsburgh, owing to the improvement of our furnace industry, and the next is the increased proportion of anthracite pig metal employed, and the decrease of the amount of bituminous iron from the Mahoning and Shenango valleys.

The following table shows the receipts of the various grades of raw iron during 1879, with the total compared with those of previous years:

	Tons.
Metal,	270,377
Ore,	329,429
Scrap,	50,567
Blooms,	30,114
Total,	680,487
1878,	474,029
1877,	432,711
1876,	397,996
1875,	410,304
1874,	533,918
1873,	631,182
1872,	466,648
1871,	367,207

In connection with this, we give the following table, showing the amount of each of the various classes of raw material received each year back to 1873:

	Metal, tons.	Ore, tons.	Scrap, tons.	Blooms, tons.
1879,	270,377	329,429	50,567	30,114
1878,	198,680	231,730	38,471	10,148
1877,	190,885	195,595	39,913	6,318
1876,	177,833	173,552	35,966	10,645
1875,	173,842	175,596	53,286	7,880
1874,	257,611	255,317	*20,990	
1873,	298,133	320,842	*12,209	

*Include both scrap and blooms.

TABULATED STATEMENTS

Of the Number and Capacity of the Blast Furnaces, Rolling-Mills, Steel Works, and Bloomaries of the State of Pennsylvania as compared with the United States, as given in the "Directory to the Iron and Steel Works of the United States," prepared and published by the "American Iron and Steel Association."

Blast Furnaces and Rolling Mills.

	Blast furnaces.	Annual capacity in tons.	ROLLING-MILLS.			
			No. of mills.	No. of puddling furnaces.	Total annual capacity, including iron and steel rails.	Annual capacity of heavy rail mills.
Pennsylvania,	275	2,597,000	138	2,225	1,830,000	750,000
All other States,	423	3,271,000	202	2,289	2,631,000	1,222,000
Total, United States,	698	5,868,000	340	4,514	4,461,000	1,972,000

In the number of puddling furnaces there is added 38 puddling furnaces in Pennsylvania and 13 in other States that are connected with crucible steel works and bloomaries.

The following table shows the number and capacity of the steel works and bloomaries of Pennsylvania as compared with the United States.

	BESSEMER STEEL WORKS.		OPEN HEARTH STEEL WORKS.		STEEL CONVERTING WORKS, OTHER THAN BESSEMER AND OPEN HEARTH.		BLOOMARIES.	
	No.	Annual capacity in ingots.	No.	Annual capacity in ingots.	No.	Annual capacity.	No.	Annual capacity.
Pennsylvania, ...	5	. . . . .	8	. . . . .	22	83,000	36	40,000
All other States, ...	6	. . . . .	14	. . . . .	24	29,000	22	25,000
Total United States, . .	11	750,000	22	150,000	46	112,000	58	65,000

One hundred and seventy-eight blanks were sent to blast furnaces, 86 of which only returned, and are tabulated as follows:

BLAST FURNACES

NAME OF FURNACE.	BY WHOM OPERATED.	COUNTY.	In what year erected.
Chestnut Grove,	Jesse R. Group,	Adams,	1830
Isabella,	Isabella Furnace Company,	Allegheny,	1871
Lucy,	Lucy Furnace Company,	do.	1871 & 1872
Shoenberger,	Shoenberger, Blair & Co.,	do.	1865
Clinton,	Graff, Bennett & Co.,	do.	1859
Eliza,	Laughlin & Co.,	do.	1861
Soho,	Moorhead, McCleane & Co.,	do.	1872
Superior,		do.	1862 & 1863
Escanaba,	Edgar Thomson Steel Co., Limited,	do.	1879
Stewardson,	F. B. & A. Laughlin,	Armstrong,	1851
Mahoning,	Wesley Wilson, (Lessee,)	do.	1845
Brady's Bend,	Brady's Bend Iron Company,	do.	1842 to 1845
Pine Creek,	Brown & Mosgrove,	do.	1846
Hopewell,	Lowry, Eichelberger & Sons,	Bedford,	1800
Kemble,	Kemble Coal and Iron Company,	do.	1869 & 1870
Keystone, Nos. 1 and 2,	Keystone Furnace Company,	Berks,	No. 1, 1869 No. 2, 1872-3
Monocacy,	Monocacy Furnace Company,	do.	1852
Moselem,	Liebrandt & McDowell,	do.	1823
Maiden Creek,	Spang, Erb & Co.,	do.	1852
Bechtelsville,	Phila. and Reading Railroad Co.,	do.	1875
East Penn,	Phila. and Reading Railroad Co.,	do.	1874 & 1875
Henry Clay,	Eckert & Bro.,	do.	1842 & 1855
Keystone,	E. & G. Brooke,	do.	1846 1853 1871 1873
Kutztown,	Phila. and Reading Railroad Co.,	do.	1875
Leesport,	Leesport Iron Company,	do.	1852
Mount Laurel,	Clymer Iron Company,	do.	1836
Reading Iron Works,	Reading Iron Works Company,	do.	1854 & 1873
Robesonia,	Ferguson, White & Co.,	do.	1845 & 1858
Temple,	Temple Iron Company,	do.	1867
Topton,	Topton Iron Compauy,	do.	1873
Joanna,	L. Heber Smith,	do.	1792
Oley,	Clymer Iron Company,	do.	1772
Windsor,	Daniel B. Fisher,	do.	1830
Hopewell,	Buckley & Clingan,	do.	1759
Hollidaysburg, Nos. 1 and 2,	Blair Iron and Coal Company,	Blair,	No. 1, 1856 No. 2, 1856 B. 1850
Bennington,	Blair Iron and Coal Company,	do.	1854
Frankstown,	Blair Iron and Coal Company,	do.	1840
Gap,	Hollidaysburg and Gap Iron Works,	do.	1815
Springfield,	John Royer,	do.	1824
Sarah,	G. W. Smith,	do.	1808
Mount Etna,	Samuel Isett,	do.	1846
Rodman,	Duncan's heirs,	do.	1820
Rebecca,	Mrs. Elizabeth Lytle,	do.	1832
Elizabeth,	Martin, Bell & Co.,	do.	1811
Allegheny,	S. C. Baker,	do.	1874
Durham Iron Works,	Cooper & Hewitt,	Bucks,	From 1853 to 1876
Cambria Iron Works,	Cambria Iron Company,	Cambria,	1855, 1864, 1869
Carbon Iron Works,	Carbon Iron Manufacturing Co.,	Carbon,	1837
East Penn,	John Balliet,	do.	1847
Eagle,	Curtins & Co.,	Centre,	1810
Logan,	Valentines & Co.,	do.	1830
Howard,	Lauth, Thomas & Co.,	do.	1864
Heela,	McCoy & Linn,	do.	1844
Irondale,	Bloomsburg Iron Company,	Columbia,	1853 & 1854
Bloom,	William Neal & Sons,	do.	1845, 1849
Phœnix Iron Works,	Phœnix Iron Company,	Chester,	1835
Isabella,	Smith Bros.,	do.	1859
Red Bank,	Reynolds & Moorhead,	Clarion,	1809
Washington,		Clinton,	1768
Carlisle Iron Works,	C. W. Ahl & Son,	Cumberland,	1770
Pine Grove Furnace,	South Mountain Mining & Iron Co.,	do.	1836
Big Pond,	Phila. and Read. Coal and Iron Co.,	do.	

IN PENNSYLVANIA.

Annual capacity in tons.	Value of annual product.	Kind of fuel used.	Character of iron. R. S., C. S., or neutral.	Number of persons employed.	Number of tons produced during the year.	Number of stacks.	REMARKS.
1,000	. . . . .	Charcoal, .	. . . . .	. . .	. . . .	1	No report.
72,000	. . . . .	Coke, . . .	R. S. and N.,	151	72,000	2	
82,000	$1,200,000	Coke, . . .	Principally bessemer.	178	70,436	2	
40,000	1,400,000	Coke, . . .	R. S., ...	133	33,843	2	
. . . .	. . . . .	. . . . .	. . . . .	. . .	12,000	1	No report.
40,000	. . . . .	Coke, . . .	Mill pig iron,	. . .	. . . .	2	No report.
25,000	. . . . .	Coke, . . .	Bes. pig iron,	. . .	. . . .	1	No report.
22,000	. . . . .	. . . . .	. . . . .	. . .	. . . .	2	No report.
. . . .	. . . . .	. . . . .	. . . . .	. . .	. . . .	3	In course of completion.
3,500	. . . . .	Coke, . . .	C. S., ...	30	. . . .	1	
4,000	. . . . .	Coke, . . .	Neutral, . . .	. . .	. . . .	1	Out of blast since 1878.
20,000	. . . . .	Coke, . . .	Pig iron, . . .	. . .	. . . .	4	Out of blast since 1874.
3,800	. . . . .	Coke, . . .	Mill pig iron,	. . .	. . . .	1	No report.
1,600	. . . . .	Charcoal, .	Neutral, . .	. .	. .	1	Out of blast since 1874.
18,000	. . . . .	Coke, . . .	Forge pig iron	97	9,562	2	
20,000	305,000	Anthracite,	Neutral, . . .	61	18,000	2	
8,000	127,500	Anthracite,	Neutral, . . .	40	5,100	1	
9,000	. . . . .	Anthracite,	Neutral, . . .	24	3,000	1	Altered from charcoal in 1853.
2,400	72,000	Charcoal, .	Neutral, . . .	121	2,400	1	
11,500	. . . . .	Anthracite,	. . . . .	. . .	. . . .	1	No report.
. . . .	. . . . .	Anthracite,	. . . . .	. . .	. . . .	2	No report.
16,000	. . . . .	Anthracite,	Forge pig iron	. . .	. . . .	2	No report.
. . . .	. . . . .	Anthracite,	. . . . .	. . .	. . . .	4	No. 1 altered from charcoal in 1872. No report.
. . . .	. . . . .	Anthracite,	. . . . .	. . .	. . . .	1	No report.
12,000	. . . . .	Anthracite,	Foundry pig iron.	. . .	. . . .	1	No report.
5,000	. . . . .	Anthracite,	. . . . .	.	. . . .	1	[report. Changed to anthracite in 1873. No
20,000	. . . . .	Anthracite,	Mill pig iron,	. . .	. . . .	2	No report.
8,000	. . . . .	Anthracite,	R. S., ...	44	8,685	2	No. 1 out of blast for five years.
. . . .	. . . . .	Anthracite,	. . . . .	. . .	. . . .	1	No report.
. . . .	. . . . .	Anthracite,	. . . . .	. . .	. . . .	1	No report.
1,200	. . . . .	Charcoal, .	Car wheel P. I.	. .	. . . .	1	No report.
1,200	. . . . .	Charcoal, .	. . . . .	. . .	. . .	1	No report.
1,000	. . . . .	Charcoal, .	. . . . .	. . .	. . . .	1	No report.
. . . .	. . . . .	Charcoal, .	. . . . .	. . .	. . . .	1	No report.
31,000	. . . . .	Coke, ...	Neutral, . . .	200	29,191	4	
6,000	. . . . .	Coke, . . .	Neutral, . . .	22	6,000	1	
2,000	60,000	Charcoal, .	Neutral, . .	44	1,600	1	
1,500	. . . . .	Charcoal, .	. . . . .	. . .	. . . .	1	Not in operation since 1876.
. . . .	. . . . .	Charcoal, .	Pig iron, . . .	. . .	. . . .	1	No report.
10,500	. . . . .	Coke, ...	. . . . .	. . .	. . . .	2	No report.
. . . .	. . . . .	Coke, ...	. . . . .	. . .	. . . .	1	Out of blast since 1877.
. . . .	. . . . .	Coke, ...	. . . . .	. . .	. . . .	1	No report.
. . . .	. . . . .	Coke, . .	. . . . .	. . .	. . . .	1	No report.
20,000	. . . . .	Anthracite,	Gray forge pig iron.	.	. . . .	1	No report.
102,000	. . . . .	Coke, ...	Bessemer pig iron.	. . .	. . . .	6	No report.
30,000	. . . . .	Anthracite,	. . . . .	. . .	. . . .	3	No report.
. . . .	. . . . .	Charcoal, .	. . . . .	. . .	. . . .	1	No report.
2,000	. . . . .	Charcoal, .	Neutral, . . .	16	1,500	1	
3,500	140,000	Charcoal, .	Neutral, . . .	22	3,500	1	
5,000	. . . . .	Coke, ...	. . . . .	. . .	. . . .	1	Changed to coke in 1872. Not blown in since.
2,000	. . . . .	Charcoal, .	Forge pig iron	. . .	. . . .	1	No report.
6,000	96,000	Anthracite,	Neutral, . .	39	6,330	2	One stack been in blast since 1873
9,000	. . . . .	Anthracite,	Gray forge pig iron.	. . .	. . . .	1	No report.
. . . .	. . . . .	Anthracite,	. . . . .	. . .	. . . .	3	No report.
. . . .	. . . . .	Charcoal, .	. . . . .	. . .	. . . .	1	No report.
5,000	. . . . .	Coke, . .	C. S., ...	. . .	. . . .	1	No report.
. . . .	. . . . .	Charcoal, .	. . . . .	. . .	. . .	1	No report.
3,300	100,000	Charcoal, .	Neutral, . . .	124	2,000	1	
6,000	. . . . .	Charcoal, .	Pig iron, . . .	. . .	. . . .	1	No report.
. . . .	. . . . .	Charcoal, .	. . . . .	. . .	. . . .	1	No report.

BLAST FURNACES

NAME OF FURNACE.	BY WHOM OPERATED.	COUNTY.	In what year erected.
Cameron,	The Cameron Furnace Company,	Dauphin,	1856
Lochiel,	Lochiel Rolling Mill Company,	do.	1872 & 1873
Paxton, Nos. 1 and 2,	McCormick & Co.,	do.	1854
Wister.	J. & J. Wister,	do.	1867
Dock Iron Works,	Gillard Dock & Co.,	do.	1873 & 1874
Union Deposit,	Union Deposit Bank,	do.	1854
Dauphin,	Dr. Lewis Heck,	do.	1854
Harrisburg,	A. Price's heirs,	do.	1844
Middletown,	Lyman Nutting,	do.	1853
Pennsylvania Steel Company,	Peunsylvauia Steel Company,	do.	1873, 1876
Erie,	Rawle, Noble & Co.,	Erie,	1869
Dunbar,	Dunbar Furnace Company,	Fayette,	1790
Lemont,	Hogsett, Hanna & Co.,	do.	1875
Oliphant,	H. & R. C. Oliphant,	do.	1874
Fairchance,	Fairchance Iron Company,	do.	1784
Franklin,	Hunter & Springer,	Franklin,	1828
Mont Alto,	Mont Alto Iron Company,	do.	1808
Carrick,	R. M. Shalter,	do.	1828
Richmond,	South Pennsylvania Railway and Mining Company,	do.	1865
Greenwood,	Logan Iron and Steel Company,	Huntiugdon,	1833 & 1864
Barree,	Lowry, Eichelberger & Sons, lessees,	do.	1863
Pennsylvania,	Lyon, Shorb & Co.,	do.	1813
Rockhill,	Rockhill Iron and Coal Company,	do.	1875
Matilda,	Estate B. B. Thomas, deceased,	do.	1847
Lackawanna,	Lackawanna Iron and Coal Co.,	Lackawanna,	1849, 1852 1854, 1872
Chickies, Nos. 1 and 2,	Chickies Iron Company,	Lancaster,	1845 & 1854
Conestoga,	Peacock & Thomas,	do.	1846
Vesta,	Watts, Twells & Co., Limited,	do.	1868
St. Charles,	C. B. Grubb & Son,	do.	1845, 1853
Donegal,	Benson & Cottrell,	do.	1847
Mount Hope,	A. Bates Grubb,	do.	1786
Marietta, No. 2,	Henry M. Watts & Son,	do.	1850
Cordelia,	H. M. North,	do.	1848
Chestnut Hill,	Chestnut Hill Iron Ore Company,	do.	1845, 1854, 1868
Marietta, No. 1,	Ethelbert Watts,	do.	1847
Safe Harbor,	Phœnix Iron Company,	do.	1848
Etna, Nos. 1 and 2,	Etna Iron Works, Limited,	Lawrence,	1868
Clara,	Raney & Berger,	do.	1872
Neshannock,	Neshannock Iron Company,	do.	1872
Shenango Iron Works,	Reis, Brown & Berger,	do.	1853 & 1872
Wampum,	Wampum Furnace Compauy,	do.	1856
Hope,	Joseph S. Brown & Co.,	do.	1868
Lebanon Valley,	J. & R. Meily,	Lebanon,	1868
Donaghmore,	R. W. Coleman's heirs,	do.	1853
Bird Coleman,	R. W. Coleman's heirs,	do.	1872 & 1873
Cornwall Anthracite,	R. W. Coleman's heirs,	do.	1859 & 1854
North Cornwall,	R. W. Coleman's heirs,	do.	1873 & 1874
Cornwall,	R. W. Coleman's heirs,	do.	1742
Lebanon,	G. Dawson Coleman,	do.	1846 & 1873
Sheridan,	W. F. Kaufman & Co.,	do.	1862, 1874 & 1875
Allentown Iron Works,	Allentown Iron Company,	Lehigh,	Between 1846 and 1872
Lehigh Iron Company,	Lehigh Iron Company,	do.	1869 & 1872
Thomas Iron Works,	Thomas Iron Compauy,	do.	No. 1 & 2, 1854-55 No. 3 & 4, 1862-63 No. 5 & 6, 1872-73 No. 7 & 8, 1867-68

IN PENNSYLVANIA—Continued.

Annual capacity in tons.	Value of annual product.	Kind of fuel used.	Character of iron, R. S., C. S., or neutral.	Number of persons employed.	Number of tons produced during the year.	Number of stacks.	REMARKS.
7,000	. . . . .	Anthracite,	C. S., ...	33	. . . .	1	Put in blast, Nov. 22, 1879, after a stoppage of five years.
7,500	$150,000 00	Anthracite coal & coke.	C. S., ...	38	7,349½	1	
25,000	450,000 00	Coke & anthracite coal.	C. S. and neutral.	83	22,000	2	
10,000	. . . . .	Coke & anthracite coal.	Neutral, . . .	36	. . . .	1	
5,000	. . . . .	Anthracite,	. . . . .	. . .	. . . .	1	Has not yet been in blast.
5,000	. . . . .	Anthracite,	. . .	. . .	. . . .	1	Idle for several years.
5,000	. . . . .	Anthracite,	Forge pig iron	. . .	. . . .	1	Out of blast.
6,000	. . . . .	Anthracite,	. . . . .	. . .	. . . .	1	Out of blast since 1874.
. . . . .	. . . . .	Anthracite,	. . .	. . .	. . . .	1	No report.
30,000	. . . . .	Coke & anthracite coal.	Bessemer pig iron.	. . .	. . . .	2	No report.
8,000	. . . . .	Charcoal, .	. . . . .	.	. . . .	1	Out of blast.
22,000	400,000 00	Coke, ...	Neutral, . . .	92	21,560	1	Re-built to present size in 1876.
14,000	150,000 00	Coke, ...	Neutral, . .	56	9,724	1	
4,500	135,000 00	Coke, . . .	R. S. & neut.,	32	45,000	1	
. . . . .	. . . . .	Coke, . .	. . . . .	. . .	. . . .	1	No report—re-built in 1871.
1,500	45,000 00	Charcoal, .	Neutral, . . .	11	1,000	1	
5,000	150,000 00	Charcoal, .	Neutral, . . .	45	1,908	1	
1,800	. . . . .	Charcoal, .	. . . . .	. . .	. . . .	1	No report.
3,600	. . . . .	Coke & anthracite coal.	C. S., ...	. . .	. . . .	1	Leased to R. T. Ryon, to take effect January, 1880.
1,800	. . . . .	Charcoal, .	Neutral, . .	23	1,914	2	
2,000	. . . . .	Charcoal, .	. . . . .	. . .	. . . .	1	No report.
. . . . .	. . . . .	Charcoal, .	. . . . .	. . .	. .	1	No report.
25,000	. . . . .	Anthracite and coke.	Forge pig iron	131	17,792	2	
3,000	. . . . .	Coke or anthracite coal.	C. S. and neutral.	. . .	. . .	1	Out of blast for three years.
. . . .	. . . . .	Anthracite,	Bessemer and forge pig iron,	. . .	. . . .	5	No report.
12,100	191,432 52	Anthracite coal & coke.	Neutral, . . .	65	11,274	2	
6,500	. . . . .	Anthracite,	Neutral, . . .	26	2,240	1	
8,000	250,000 00	Anthracite coal & coke.	Neutral, . . .	30	. . . .	1	
. . . . .	132,820 00	Anthracite,	Red short, . .	50	6,691	2	
6,000	. . . . .	Anthracite,	Neutral, . . .	27	. . .	1	
2,000	. . . . .	Charcoal, .	R. S., . . .	32	1,800	1	
5,000	. . . . .	Anthracite,	Neutral, . . .	. . .	. . . .	1	Commenced operations.
6,500	. . . . .	Anthracite,	R. S. & neut.,	. . .	.	1	Out of blast since 1875.
18,000	. . . . .	Anthracite,	Pig iron,	. .	. . . .	3	No report.
5,000	. . . . .	Anthracite,	. . . . .	. .	. . . .	1	No report.
8,000	. . . . .	Anthracite,	. .	. .	. . . .	1	No report.
20,000 to 25,000	. . . . .	Coal & coke,	C. S. R. S. and neutral, .	75	. . . .	2	
18,000	. . . . .	Coke, ...	Bes. pig iron,	36	10,000	1	
24,000	. . . . .	Coke, ...	Bes. pig iron,	. . .	. . . .	1	No report.
40,000	. . . . .	Coke, .	. . . . .	. . .	. . . .	3	No report.
8,000	. . . . .	Coke & coal,	Forge pig iron neutral, . .	. . .	. . . .	1	No report.
. . . .	. . . . .	Charcoal, .	. . . . .		. . . .	1	Out of blast since 1875.
5,000	. . . . .	Anthracite,	R. S., . .	31	5,000	1	
6,000	. . . . .	Anthracite,	Cornwall iron ore.	23	6,000	1	
. . . .	. . . . .	Anthracite,	. . . . .	. . .	. . .	1	No report.
. . . .	. . . . .	Anthracite,	. . . . .	. .	. . . .	2	No report.
. . . .	. . . . .	Anthracite,	. . . . .	. . .	.	1	No report.
. . .	. . . . .	Charcoal, .	. . . . .	. . .	. . . .	1	No report.
400	. . . . .	Anthracite,	. . . . .	. . .	. . . .	2	No report.
18,000	. . . .	Anthracite,	. . . . .	. .	. . .	2	No report.
50,000	. . . . .	Anthracite,	Neutral, . .	151	30,000	5	
23,000	. . . . .	Anthracite,	Neutral, . . .	75	17,982	2	
100,000	1,600,000 00	Anthracite,	Neutral, . .	345	80,000	8	

BLAST FURNACES IN

NAME OF FURNACE.	BY WHOM OPERATED.	COUNTY.	In what year erected.
Lehigh Valley Iron Works,	Lehigh Valley Iron Company,	Lehigh,	1853, 1862 & 1868
Emaus,	C. H. Nimson,	do.	1872
Crane Iron Works,	Crane Iron Company,	do.	1840, 1842, 1846
			1850, 1850, 1867
Allentown Rolling Mill Co.,	Allentown Rolling Mill Company,	do.	1864
Lycoming,	D. A. Jones & Co.,	Lycoming,	1874
Douglas,	Pierce, Kelly & Co.,	Mercer,	1870
Keel Ridge,	Kimberly, Carnes & Co.,	do.	1869
Stewart,	Stewart Iron Company, limited,	do.	1870
Westerman,	Westerman Iron Company,	do.	1865 & 1866
Sharpsville,	Sharpsville Furnace Company,	do.	1845 & 1846
Allen,	Henderson, Allen & Co.,	do.	1863
Sharon,	Boyce, Rawle & Co.,	do.	1845
Wheatland,	B. B. Reath,	do.	1863
Shenango,	Shenango Furnace Company,	do.	1859
Ormsby,	Sharon Banking Company,	do.	1872
Mount Hickory Iron Company,	Mt. Hickory Iron Company,	do.	1869
Fannie,	Wheeler Iron Company,	do.	1873
Spearman,	Spearman Iron Company,	do.	1872
Glamorgan, Nos. 1 and 2,	Glamorgan Iron Company,	Mifflin,	1867, 1871
Norristown Iron Works,	James Hoover & Sons,	Montgomery,	1868
Montgomery,	Montgomery Iron Company,	do.	1854
Anvil,	Pottstown Iron Company,	do.	1867
Edgehill,	Edgehill Iron Company,	do.	1872
Merlon, Elizabeth,	J. B. Morehead & Co.,	do.	1847, 1872
Plymouth,		do.	1845 & 1861
Swede,	Phila. & Reading Coal and Iron Co.,	do.	1849, 1853
Warwick,	Warwick Iron Company,	do.	1875
William Penn,	D. O. & H. S. Hitner,	do.	[1844, 1845, 1854
Columbia,	Grove Brothers,	Montour,	1840, 1860
Danville,	John Roach & Son,	do.	1867
Pennsylvania Iron Works,	Waterman & Beaver,	do.	1842
Colerain Iron Works,	Charles F. Shoener,	Northampton,	1868, 1871
	Bethlehem Iron Company,	do.	No. 1, 1863 No. 2, 1867 No. 3, 1868 No. 4, 1874 & 75 No. 5, 1874 & 75 No. 6, 1874 & 75
Glendon Iron Works,	Glendon Iron Company,	do.	1843, 1844, 1850
			1852, 1869
Keystone,	Henry Fulmer,	do.	1867
Northampton,	Bethlehem Iron Company, lessee,	do.	1872 & 1873
North Penn,	North Penn Iron Company,	do.	1870
Saucon,	Saucon Iron Company,	do.	1868, 1870
Uhler,	Estate Peter Uhler,	do.	1872
Chulasky,	Waterman, Beaver & Co.,	Northumb'd,	1846
Northumberland,	James S. Marsh & Co.,	do.	1873 & 1874
Marshall,	Marshall Brothers,	Perry,	1872
Duncannon,	Duncannon Iron Company,	do.	1852
Laura,	Perry Kreamer, assignee,	do.	1873
Philadelphia,	S. Robbins & Son,	Philadelphia,	1873
Pioneer Nos. 1, 2, and 3,	Atkins Brothers,	Schuylkill,	No. 1, 1853
			No. 2, 1866
			No. 3, 1872
Ringgold,	D. Longenaker, junior, lessee,	do.	1873
Port Carbon,	Phila. & Reading Coal and Iron Co.,	do.	1872
St. Clair,	Phila. & Reading Coal and Iron Co.,	do.	1845
Stanhope,	Wynkoop Brothers,	do.	1825
Mansfield,	Shaaber, Johnston & Co.,	Tioga,	1852
Union,	Beaver, Marsh & Co.,	Union,	1853
Forest Iron Works,	A. Pardee,	do.	1846
Charlotte,	Charlotte Furnace Company,	Westmoreland,	1872
Aurora,	The Wrightsville Iron Company,	York,	1867
York,	John Bair,	do.	1830

PENNSYLVANIA.—Continued.

Annual capacity in tons.	Value of annual product.	Kind of fuel used.	Character of iron, R. S., C. S., or neutral.	No. of persons employed	Number of tons produced during the year.	Number of stacks.	REMARKS.
30,000	. . . . .	Anthracite,	. . . . .	. . .	. . . .	3	No report.
. . . . .	. . . . .	Anthracite,	. . . . .	. . .	. . . .	1	No report.
70,000	. . . . .	Anthracite,	Foundry and Bessemer.	. . .	. . . .	6	No report.
20,000	. . . . .	Anthracite,	. . . . .	. . .	.	2	No report.
. . . . .	. . . . .	Anthracite,	. . . . .	. .	. . . .	1	Out of blast since 1874.
30,000	500,000	Coke & bituminous coal	R. S., ...	40	15,000	2	
15,000	. . . . .	Coke & coal,	Neutral, . . .	39	13,000	1	
35,000	362,760	Coke & coal,	R. S., ...	75	18,138	2	
24,000	. . . . .	Coke & coal,	Mill pig iron,	65	13,545	2	
9,000	. . . . .	Bituminous,	R.S. Bessemer	. . .	. . . .	1	Out of blast during 1879.
10,000	. . . . .	Bituminous,	R. S., ...	. . .	. . . .	1	Out of blast since August, 1877.
9,000	. . . . .	Coal or coke,	. . . . .	. . .	. . . .	1	Out of blast since 1874. Preparing to start January, 1880.
30,000	. . . . .	Coal or coke,	. . . . .	. . .	. . . .	4	Not in operation.
17,000	. . . . .	Bituminous,	. . . . .	. .	. . . .	2	No report.
9,000	. . . . .	Coal or coke,	. . . . .	. . .	. . . .	1	Out of blast since 1876.
18,000	. . . . .	Coal or coke,	Forge pig iron	. . .	. . . .	2	No report.
14,000	. . . . .	Coal & coke,	Bess. pig iron	. . .	. . . .	1	No report.
30,000	. . . . .	Coal & coke,	R. S., ...	40	16,756	2	
14,400	230,400	Coal & coke,	Neutral, . . .	60	11,350	2	
12,000	30,500	Anthracite,	Neutral, . . .	38	1,222	1	
10,000	100,000 to 200,000	Anthracite,	Neutral, . . .	36	2,600	1	
12,000	. . . . .	Anthracite,	Mill pig iron,	. . .	. .	1	Out of blast.
. . . . .	. . . . .	Anthracite,	. . . . .	. . .	. . . .	1	No report.
375	. . . . .	Anthracite,	Forge pig iron	. .	. . . .	2	Out of blast since 1876.
19,000	. . . . .	Anthracite,	Fd'y pig iron,	. . .	. . . .	2	No report.
. . . . .	. . . . .	Anthracite,	. . . . .	. . .	. . . .	2	Out of blast for several years.
17,000	. . . . .	Anthracite,	Mill pig iron,	. . .	. . . .	1	No report.
. . . . .	. . . . .	Anthracite,	. . . . .	. . .	. . . .	3	No report.
13,756	. . . . .	Anthracite,	Fd'y pig iron,	. . .	. . . .	2	No report.
14,000	. . . . .	Anthracite,	. . . . .	. .	. . . .	2	No report.
. . . . .	. . . . .	Anthracite,	. . . . .	. . .	. . . .	3	No report.
26,000	. . . . .	Anthracite,	Neutral, . . .	107	15,000	2	
75,000	. . . . .	Anthracite,	Bess. pig iron	. . .	. . .	5	No report.
1,800	. . . . .	Anthracite,	Spiegle iron,	. . .	. . . .	1	No report.
60,000	. . . . .	Anthracite,	Forge pig iron	. . .	. . . .	5	No report.
12,000	. . . . .	Anthracite,	Fd'y pig iron	. . .	. . . .	1	No report.
11,200	. . . . .	Anthracite,	Bess. pig iron	. . .	. . . .	1	No report.
. . . . .	. . . . .	Anthracite,	. . . . .	. . .	. . . .	1	No report.
25,000	. . . . .	Anthracite,	Fd'y pig iron,	. . .	. . . .	2	No report.
7,500	. . . . .	Anthracite,	. . . . .	. . .	. . . .	1	No report.
. . . . .	. . . . .	Anthracite,	. . . . .	. .	. . . .	1	No report.
. . . .	. . . . .	Anthracite,	. . . . .	. . .	. . . .	1	Never been in blast.
7,000	. . . . .	Anthracite coal & coke.	Neutral, . . .	40	7,200	1	
8,000	. . . . .	Anthracite,	Mill pig iron,	. .	. . . .	1	Out of blast since July, 1873.
. . . .	. . . . .	Charcoal,	. . . . .	. . .	. . . .	1	Out of blast.
10,000	. . . . .	Anthracite,	R. S., ...	. .	. . . .	1	Out of blast.
25,000	600,000	Anthracite,	All kinds.	117	10,000	3	
7,500	150,000	Anthracite,	Neutral, . . .	28	1,200	1	
. . . .	. . . . .	Anthracite,	. . . . .	. . .	. . . .	1	No report.
. . . . .	. . . . .	Anthracite,	. . . . .	. . .	. . . .	1	No report.
5,200	. . . . .	Anthracite,	. . . . .	. . .	. . .	1	Out of blast since June, 1874.
3,300	. . . . .	Anthracite,	R. S. & C. S.,	.	. . . .	1	Out of blast.
6,000	16,200	Anthracite,	C. S., ...	29	4,800	1	
. . . .	. . . . .	Charcoal,	. . . . .	. . .	. . .	1	No report.
16,000	250,000 to 450,000	Coke, ...	Neutral, . . .	54	13,880	1	
5,000	125,000	Anthracite,	Neutral, . . .	31	1,202	1	
. . . . .	. . . . .	Charcoal,	. . . . .	. . .	. . . .	1	Out of blast for six years.

BLAST FURNACES.—

NAME OF FURNACE.	Weeks in operation during the year.	Managers.		Foundrymen.		Keepers		Keepers helpers.		Fillers.		Guttermen.	
		Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
Isabella,	52	1	....	1	$2 75	4	$2 50	8	$2 00	16	$1 85	2	$1 75
Lucy, No. 1,	52	1	*$2,000	..	....	6	2 25 and 2 50	8	1 70	36	1 50	4	1 50
No. 2.	46												
Shoenberger, No. 1,	52	..	....	1	*$1,000	4	2 20	4	1 76	6	2 00	..	....
No. 2,	47									16	1 72		
Stewardson,	52	1	....	1	...	2	...	..	...	2	....	3	....
Kemble,	52	1	....	1	....	2	1 60	2	1 27	8	1 10 to 1 21	2	1 10
Keystone, Nos. 1 and 2,	52	..	....	1	*1,200	4	1 44	4	1 19	20	1 19	8	1 19
Monocacy,	32	1	....	..	....	2	1 50	3	1 10 and 1 30	6	1 20 and 1 25	..	....
Moselem,	20	2	....	1	....	2	1 50	2	1 15	8	1 02 and 1 10	..	....
Maiden Creek,	52	1	....	1	....	1	...	..	...	2	....	1	....
Robesonia, No. 2,	52 1-7	1	....	1	...	2	1 60	3	1 25	8	1 25	..	....
Bennington, Frankstown,	...	1	....	1	3 96	2	1 70	..	...	30	1 26	..	....
Hollidaysburg, Nos. 1 and 2,						6	1 63						
Gap,	...	1	1 50	1	1 40	2	2 00	2	1 10	6	1 00	2	1 10
Springfield,	42	1	....	1	1 50	2	1 16	..	...	2	1 10	1	1 00
Eagle,	42	..	....	1	‖25	2	‖20	..	...	2	‖20	1	‖20
Logan,	...	..	....	1	2 50	2	1 60	1	1 00	2	1 60	1	1 80
Irondale,	52	1	....	1	....	2	.	2	...	8	**	.	**
Carlisle Iron Works,	38	1	....	1	1 50	2	90	..	....	2	90	2	80
Cameron,	...	1	....	1	....	2	...	2	..	6	....	3	....
Lochiel,	51	.	....	1	3 33	2	1 62	2	1 30	8	1 22	2	1 25
Paxton, Nos. 1 and 2,	52	1	....	1	...	4	1 50	4	1 30	16	1 22	..	....
Wister,	52	1	....	1	....	2	1 54	2	1 30	10	1 22	4	1 22
Dunbar,	52	2	*1,800 and 2,500	1	†125 00	2	2 00	4	1 50	11	1 40 to 2 00	2	1 30
Lemont,	...	2	5 00	1	5 00	2	2 00	4	1 50	10	1 35	4	1 25
Oliphant,	40	..	....	1	2 50	2	1 50	2	1 40	6	1 30	..	....
Franklin,	...	..	....	1	†50 00	2	†2400	..	....	2	†22 00	1	†22 00
Mont Alto,	21 to 52	1	....	1	1 66⅔	2	1 10	..	....	3	90	2	1 00
Greenwood,	52	2	2 75	1	1 27	2	1 21	..	...	2	1 05	1	1 05
Rockhill,	...	1	....	1	....	4	1 40	4	1 10	30	1 10	4	1 10
Chickies, Nos. 1 and 2,	52	..	....	2	....	4	1 20	4	1 00	14	90	2	1 00
Conestoga,	22	..	....	1	1 66	2	1 40	2	1 10	4	1 10	2	1 10
Vesta,	...	1	....	1	....	2	...	2	...	8	....	1	....
St. Charles,	40	1	*1,500	1	*1,000	2	1 60	2	1 30	10	1 20	3	1 33
Donegal,	13	..	....	1	2 50	2	1 40	2	1 20	8	1 10	1	1 20
Mount Hope,	48	2	....	..	....	¶2	..	..	.	¶3	...	¶1	....
Etna, Nos. 1 and 2,	...	1	2 40	1	2 40	4	2 00	4	1 75	28	1 75	..	....
Clara,	30	..	....	1	3 00	2	2 00	2	1 75	10	1 75	..	....
Lebanon Valley,	40	1	....	1	2 50	2	1 50	2	1 35	8	1 00	2	1 35

EMPLOYEES WAGES.

Stock-men.		Cinder-men.		Engineers.		Firemen.		Black-smiths.		Carpenters.		Iron carriers		Laborers.		Boys.		Other employees	
Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
.	. . . .	4	$1 80	3	$2 25 2 50 3 00	4	$1 75	2 2	$1 75 2 50	4	$1 90 and 2 10	. .	. . .	100	$1 50				
.	. . . .	12	1 40	3	2 00 and 2 50	2	1 75	4 4	1 25 2 10	1	2 00	4	$1 50	90	1 12 to 1 35	.	. . .	3	$1 30 and 1 75
.	. . . .	4	1 74	2	2 11	2 2	1 63 1 37	2	1 65	2	1 40 and 1 48	6	. . .		1 25 to 1 35	.	. . .	2	1 50 and 2 00
2	. . . .	. .	. . . .	2	. . . .	.	. . .	1 1	†85 00	1	1 75	. .	. . .	14	1 25				
8	$1 00	6	1 10	6	1 60	.	. . .	2	1 70	5	1 25	. .	. . .	59	1·00 and 1 10	2 2	$1 00 50		
.	. . . .	1	‡12 75	4	1st, 1 48 2d, 1 26	.	. . .	1 1	1 00 1 60	3	1 35	. .	. . .	13	90	.	. . .	1	1 65
.	. . . .	4	1 30	2	1 40 and 1 75	.	. . .	1	1 40	1	1 50	2	1 25	15	1 10	.	. . .	3	1 25 to 1 40
.	. . . .	2	. . . .	2	1 15 and 1 40	.	. . .	1	1 00	1	1 00	1	. . .	2	80				
1	. . . .	1	. . . .	1	. . . . .	.	. . .	1	. .	1	. . .	.	. .	110	85				
3	1 15	4	1 25	2	1 80	.	. . .	1	1 75	2	1 75	1	¶11	11	1 10	2	60	2	
16	1 00	8	1 26	8	1 32	.	. .	1 1 1	2 31 1 92 1 21	1 1 1 1	1 58 2 45 1 65 1 35	16	1 32	5 100	60 1 00				
.	. . . .	2	1 10	2	1 35	.	. .	1 1	1 00 2 00	1	. . .	1	1 00						
1	1 00	. .	. . . .	.	. . . .	.	. . .	2	1 50	1	1 25	. .	. .	10 20	50 80	.	. . .	3	
3	‖20	. .	. . . .	. .	. . . . .	.	. . .	2	1 35	1	§1 25	. .	. . .	1 3	1 35 90				
2	1 15	. .	. . . .	2	2 25	.	. . .	1 1	2 00 1 25	1	2 25	. .	. . .	4	1 00	.	. . .	4	
.	**	6	. . .	. .	. . . . .	.	. . .	2	. . .	1	. . .	3	. . .	9	. . . .	.	. . .	4	
2	80	. .	. . . .	. .	. . . . .	.	. . .	2	1 10	2	1 25	. .	. . .	110	80				
.	. . . .	4	. . . .	2	. . . . .	.	. . .	1	. . .	1	. .	2	. . .	8					
1	1 75	2	1 25	2	1 46	.	. . .	1 1	1 00 1 50	1	1 50	. .	. . .	15	1 00				
10	1 22	4	1 22	. .	. . . . .	.	. . .	5	1 10 to 2 00	4	1 50 and 2 00	4	. . .	30	1 10				
.	. . . .	. .	. . . .	2	1 54	.	. . .	1 1	1 00 1 83	1	1 50	1	‖05	8	1 00	.	. . .	2	
8	1 15	8	1 30	6	2 00	6	1 40	3 6	1 00 1 60	4	1 75	3	1 25 and 2 00	3 10	1 50 1 15	2	75	11	1 50 to 3 33
2	1 10	5	1 15	3	1 75	2	1 62	1 3	1 25 1 95	3	1 90	2	1 33	12	1 10				
3	1 00	2	1 75	2	1 50	.	. .	1	1 50	2	1 40	1	1 20	8	1 00	2	75		
1	†22 00	. .	. . . .	.	. . . .	.	. . .	1	1 10	. .	. . .	. .	. . .	3	70				
2	90	. .	. . . .	5	1 25	.	. . .	3 3	1 88 1 25	6	1 25	1	1 00	9	75	1 3	75 40	2 1	1 15 1 10
1	1 05	. .	. . . .	2	1 14	.	. . .	2	1 54	2	1 54	1	80	6	80	1	40		
3	1 00	7	1 10	2	1 50	2	1 12½	1 1 1	1 00 1 50 1 80	3	1 35 to 1 80	4	. . .	60	1 00	.	. . . .	1 1 1	1 50 1 75 1 83
.	. . . .	4	1 00	4	1 00	.	. . .	1 1	1 50 1 30	1	1 60 1 25	. .	. . .	20	90	2	70	1 1 3	90 1 00 1 20
3	1 00	2	1 00	2	1 30	.	. . .	1	1 00	.	. . .	. .	. .	7	90				
2	. . . .	2	. . .	2	. . . . .	.	. . .	2	. . .	2	. .	. .	. . .	4	. . .	.	. . .	1	
.	. . . .	4	1 20	2	1 60	.	. . .	1 1	60 1 90	2	2 00	. .	. . .	4 16	1 10 1 05	.	. . .	1	1 05
1	1 10	2	1 20	2	1 20	.	. . .	1	1 70	1	1 25	. .	. . .	6	1 00				
2	¶	. .	. . . .	2	¶	.	. . .	2	¶	1	¶	. .	. .	17	¶				
10	1 50	.	. . . .	2	2 00	2	1 75	1 1	1 37 2 20	1	1 60	. .	. . .	20	1 60				
4	1 37	4	1 37	2	2 25	2	1 75	1 1	1 37 1 50	. .	. . .	3	‖	3	1 37	.	. . .	1	1 50
4	1 00	2	1 35	2	1 35	.	. . .	1	1 10	1	1 10	1	2 00	4	1 00				

BLAST FURNACES.—

NAME OF FURNACE.	Weeks in operation during the year.	Managers.		Foundrymen.		Keepers.		Keepers' helpers.		Fillers.		Gutter-men.	
		Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
Donaghmore,	52	1	....	1	$1 66⅔	2	$1 50	2	$1 20	6	$1 20	2	$1 25
Allentown Iron Works,	...	1	....	3	2 00 and 1 60	10	1 40	30	1 25	40	1 25	..	....
Lehigh Iron Co., No. 1,	52	..	....	2	1 65	4	1 41	12	1 26	16	1 26	..	....
No. 2,	40												
Thomas Iron Works, (3 furnaces.)	††41¾	2	....	5	1 80 to 2 50	16	1 80	32	1 68	128	1 58	..	....
Douglas,	52	.	....	1	3 00	2	1 75	2	1 50	11	1 50	2	1 50
Keel Ridge,	50	..	.....	1	....	2	1 75	2	1 50	9	1 50	3	1 40
Stewart, No. 1,	52	1	....	..	.....	4	1 75	8	1 50	22	1 50	..	...
No. 2,	7												
Westerman, No. 1,	23¾	1	....	1	2 75	2	1 75	2	1 50	10	1 50	..	....
No. 2,	40 1-7												
Spearman, No. 1,	52	1	....	1	2 50	2	1 50	2	1 35	11	1 35	1	1 25
No. 2,	1												
Glamorgan, Nos. 1 and 2,	52	1	$1 80	1	....	4	..	4	...	10	....	4	...
Norristown Iron Works,	6⅓	1	2 00	..	.....	2	1 40	2	1 25	8	1 25	..	....
Montgomery,	15	1	...	.	....	3	1 40	2	1 20	8	1 20	..	....
Coleraine, No. 1,	52	1	....	2	2 00	4	1 50	4	1 35	20	1 25	..	....
No. 2,	13												
Marshall,	52	..	.....	1	2 00	2	1 40	2	1 15	10	1 00	2	1 00
Pioneer, Nos. 1, 2, and 3,	52	1	3 00	2	5 00	6	1 40	8	1 21	22	1 26	6	1 20
Ringgold,	8	1	4 00	..	....	2	1 50	2	1 20	8	1 15	2	1 10
Union,	47	1	....	..	.....	2	1 28¼	2	1 16⅔	8	1 16⅔	..	....
Aurora,	12	..	.....	1	1 67	2	1 40	2	1 20	8	1 10	2	1 22
Charlotte,	52	2	....	1	4 00	2	2 00	4	1 50	10	1 55	..	....

* Salary per annum. † Wages per month. ‡ Wages per week. § Daily wages and board.

EMPLOYEES WAGES—Continued.

Stock-men.		Cinder-men.		Engineers		Firemen		Black-smiths.		Carpen-ters.		Iron carriers.		Laborers		Boys.		Other employees	
Number.	Wages	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
..	...	..	...	2	$1 70 and 1 30	..	...	1	$1 25	1	$1 00	1	‖10½c	4	$1 00				
..	...	..	...	13	1 25	10	$1 10	1	85	2	1 25	.	...	40	85				
								1	1 30										
4	$1 15	4	$1 30	4	1 30	2	95	2	1 15 to 1 40	3	1 05 to 1 35	6	$1 00 to 1 25	10	90	6	$0 50		
..	...	8	1 50	14	1 56 to 2 15	8	1 40	6	1 00 to 1 19	16	1 25 to 1 75	10	1 58	40	1 00	..	...	39	$1 00 to 2 00
								7	1 39 to 2 20			14	1 25						
8	1 25	..	...	2	1 75 and 2 00	2	1 40	1	1 25	1	2 00	..	...	7	1 25				
								1	2 00										
1	1 40	..	...	2	2 00	..	...	1	1 40	1	1 90	.	...	15	1 25	..	...	1	1 60
								1	2 00										
10	1 25	4	2 00	3	2 25	1	1 75	1	1 25	1	2 25	1	1 50	2	1 00	..	...	5	
								1	2 25			5	2 59	8	1 25				
2	1 35	2	2 25	3	2 00	2	1 40	..	....	..	...	1	1 25	24	1 25	..	...	2	1 65
					1 85							2	1 50	2	1 40			1	1 75
														4	1 50			3	2 50
																		1	3 00
..	...	1	1 25	2	1 75 and 2 25	2	1 25	1	1 75	1	1 75	..	...	14	1 10	..	...	1	
10	...	4	...	4	....	..	...	2	....	1	...	1	...	12					
								2											
2	1 25	2	1 25	1	2 50	..	...	1	1 10	1	2 00	..	...	10	1 00	1	50	2	1 25
				2	1 40			1	2 50							2	75		
..	..	4	1 20	1	1 20	..	...	1	1 50	1	1 50	2	1 00	12	1 00				
				1	2 00														
..	..	8	1 25	3	1 35	1	1 10	1	1 25	4	1 25	1	95	50	95	..	...	4	1 70
								1	1 60									3	1 75
2	1 00	4	1 00	2	1 50	..	...	1	1 00	1	1 50	..	...	10	90	..	...	2	1 15
								1	1 35										
15	1 00	2	1 20	4	1 40	2	1 16	2	86	3	1 37	7	1 26	25	1 00	10	93		
								2	1 44										
3	1 00	2	1 10	2	1 50	..	...	1	1 15	1	1 15	1	1 20	3	1 00				
..	..	4	1 16⅔	2	1 33⅓	..	..	1	1 25	..	..	..	...	5	1 00	4			
..	...	3	1 10	2	1 25	..	...	1	1 00	2	1 25	1	...	3	1 00	..	...	2	1 10
								1	1 40									1	1 40
2	1 50	6	1 50	3	2 00	1	1 25	2	1 50	2	1 75	2	2 00	15	1 25				
								2	1 75										

‖ Price paid per ton. ¶ Monthly wages $20, rent free. ** Wages 95 cents to $1 50 per day. †† Average.

RECAPITULATION.

The following tables are a recapitulation of the foregoing; showing the number and classification of employés, the average number of days employed, with average daily, yearly, and weekly earnings:

COUNTIES.	Number of returns.	Average days employed.	Foundrymen.	Keepers.	Keepers' helpers.	Fillers.	Guttermen.	Stockmen.	Cindermen.	Engineers.	Firemen.	Blacksmiths.	Carpenters.	Iron carriers.	Laborers.	Boys.	Other employees.
Allegheny	3	351	2	14	20	64	6	. . .	20	8	10	14	7	10	270	. . .	5
Armstrong	1	365	1	2	. . .	2	3	2	. . .	2	. . .	2	1	. .	14		
Bedford	1	365	1	2	2	8	2	8	6	6	. . .	2	5	. .	50	4	
Berks	5	291	4	11	12	44	9	4	12	11	. .	6	8	4	151	3	6
Blair	3	294	3	12	2	38	3	17	10	10	. . .	7	6	17	135	. . .	3
Centre	2	294	2	4	1	4	2	5	. . .	2	. . .	4	2	. . .	8	. . .	4
Columbia	1	365	1	2	2	8	. .	. . .	6	. . .	. .	2	1	3	9	. . .	4
Cumberland	1	266	1	2	. .	2	2	2	. . .	. . .	. . .	2	2		110		
Dauphin	4	362	4	10	10	40	9	11	10	6	. . .	10	7	7	61	. .	2
Fayette	3	322	3	6	10	27	6	13	15	11	8	14	9	6	33	4	11
Franklin	2	255	2	4	. .	5	3	3	. .	5	. . .	7	6	1	12	4	3
Huntingdon	2	365	2	6	4	32	5	4	7	4	2	5	5	5	66	1	3
Lancaster	6	245	6	14	12	47	10	8	14	14	. .	10	8	. . .	74	2	7
Lawrence	2	210	2	6	6	38	. .	14	4	4	4	4	1	3	23	. . .	1
Lebanon	2	322	2	4	4	14	4	4	2	4		2	2	2	8		
Lehigh	3	307	10	30	74	184	. . .	4	12	31	20	17	21	30	90	6	39
Mercer	5	302	4	12	16	63	6	21	7	12	7	7	4	9	76	. . .	14
Mifflin	1	365	1	4	4	10	4	10	4	4	. . .	4	1	1	12		
Montgomery	2	75	. . .	5	4	16	. . .	2	6	5	. .	3	2	2	22	3	2
Northampton	1	227	2	4	4	20	. .	. . .	8	3	1	2	4	1	50	.	7
Perry	1	365	1	2	2	10	2	2	4	2	. .	2	1	. . .	10	. . .	2
Schuylkill	2	210	2	8	10	30	8	18	4	6	2	5	4	8	28	10	
Union	1	329	. . .	2	2	8	. . .	. . .	4	2	. .	1	. . .	. . .	5	4	
York	1	84	1	2	2	8	2	. . .	3	2	. . .	2	2	1	3	. . .	3
Westmoreland	1	365	1	2	4	10	. . .	2	6	3	1	4	2	2	15		
	56	292.04	58	170	207	732	86	154	164	157	55	138	111	112	1,335	41	116

RECAPITULATION—Continued.

COUNTIES.	AVERAGE DAILY WAGES.							Average days employed.	AVERAGE EARNINGS.						
									YEARLY.						
	Foundrymen.	Keepers.	Fillers and other furnace hands.	Mechanics.	Iron carriers and laborers.	Boys.	Other employees.		Foundrymen.	Keepers.	Fillers and other furnace hands.	Mechanics.	Iron carriers and laborers.	Boys.	Other employees.
Allegheny,	$2 75	$2 36	$1 67	$1 93	$1 35	. . .	$1 67	351	$965 25	$828 36	$586 17	$687 96	$473 85	. . . .	$586 17
Armstrong,	. . .	. . .	. . .	2 51	1 25	. . .	. .	365	. . . .	. . . .	. . . .	916 15	456 25	. . .	. . . .
Bedford,	. . .	1 60	1 10	1 48	1 05	$0 75	. . .	365	. . . .	584 00	401 50	540 20	383 25	$273 75	. . . .
Berks,	3 29	1 50	1 20	1 43	91	60	1 40	291	957 39	433 50	349 20	416 13	264 81	174 60	407 40
Blair,	2 29	1 63	1 15	1 50	96	. . .	. . .	294	673 26	479 22	338 40	441 00	282 24	. . . .	. . . .
Centre,	1 88	1 31	1 20	1 74	1 00	. . .	. . .	294	522 72	365 14	352 80	514 56	291 00	. . . .	. . . .
Columbia,	1 22	1 22	1 22	1 22	1 22	. . .	1 22	365	444 08	444 08	444 08	444 08	444 08	. . . .	444 08
Cumberland,	1 50	90	84	1 17	80	. . .	. . .	256	390 00	239 40	223 44	311 22	212 80	. . . .	. . . .
Dauphin,	3 33	1 54	1 24	1 53	1 06	. . .	. .	362	1,205 46	557 48	448 88	553 86	377 72	. .	. . .
Fayette,	3 87	1 83	1 35	1 67	1 18	75	2 41	322	924 14	589 26	434 70	537 74	379 96	241 50	776 02
Franklin,	1 67	94	85	1 35	76	40	1 13	256	425 85	239 70	216 75	344 25	193 80	124 95	288 15
Huntingdon,	1 27	1 34	1 09	1 46	98	40	1 69	365	462 28	487 76	396 73	531 44	356 72	145 60	6 5 16
Lancaster,	2 30	1 24	1 05	1 35	97	70	1 09	245	563 50	303 80	257 25	330 75	237 65	171 50	267 05
Lawrence,	2 70	2 00	1 66	1 73	1 57	. . .	1 50	210	567 00	420 00	348 60	363 30	329 70	. . . .	315 00
Lebanon,	2 08	1 50	1 15	1 27	1 17	. . .	. .	322	669 76	483 00	370 30	408 94	376 74	. . . .	. . . .
Lehigh,	1 94	1 61	1 44	1 47	1 03	50	1 50	307	595 58	494 27	442 08	451 29	316 21	153 50	460 50
Mercer,	2 75	1 71	1 46	1 91	1 32	. . .	2 14	302	830 50	516 42	440 82	574 82	398 64	. . . .	616 28
Montgomery,	. .	1 40	1 23	1 71	1 00	66⅔	1 25	75	. .	105 00	92 25	128 25	75 00	50 00	93 75
Northampton,	2 00	1 50	1 26	1 32	95	. . .	1 72	227	454 00	340 50	285 02	299 64	215 65	. . . .	390 44
Perry,	2 00	1 40	1 01	1 37	90	. . .	1 15	365	728 00	509 60	367 64	493 68	327 60	. . . .	418 60
Schuylkill,	5 00	1 42	1 16	1 30	1 06	93	. . .	210	1,050 00	298 20	243 60	273 00	222 60	195 30	. . . .
Union,	. . .	1 25⅔	1 16⅔	1 31	1 00	. . .	. .	329	. . . .	422 21	384 43	430 93	329 00	. . . .	. . . .
York,	1 67	1 40	1 13	1 23	1 00	. . .	1 20	84	140 28	117 60	94 92	103 32	84 00	. . .	109 80
Westmoreland,	4 00	2 00	1 51	1 78	1 34	. . .	. . .	365	1,456 00	728 00	519 64	647 92	487 76	. . . .	. . . .

COUNTIES.	AVERAGE EARNINGS.						
	WEEKLY.—(52 weeks.)						
	Foundrymen.	Keepers.	Fillers and other furnace hands.	Mechanics.	Iron carriers and laborers.	Boys.	Other employees.
Allegheny,	$18 56	$15 93	$11 27	$13 23	$9 11	. . .	$11 27
Armstrong,	. . . .	. . . .	. . . .	17 57	8 75		
Bedford,	. . . .	11 20	7 70	10 35	7 35	$5 25	
Berks,	18 41	8 39	6 72	8 00	5 09	3 36	7 83
Blair,	12 95	9 22	6 50	8 48	5 43		
Centre,	10 63	7 40	6 78	9 84	5 65		
Columbia,	8 54	8 54	8 54	8 54	8 54	. . .	8 54
Cumberland,	7 67	4 60	4 30	5 93	4 09		
Dauphin,	23 18	10 72	8 63	10 65	7 26		
Fayette,	17 77	11 33	8 36	10 34	5 38	4 64	14 92
Franklin,	8 19	4 61	4 17	6 62	3 72	2 49	5 54
Huntingdon,	8 89	9 38	7 63	10 22	6 86	2 80	11 83
Lancaster,	10 81	5 84	4 95	6 36	4 57	3 30	5 13
Lawrence,	10 91	8 08	6 70	6 98	6 34	. . .	6 06
Lebanon,	12 88	9 29	7 12	7 86	7 23		
Lehigh,	11 45	9 50	8 50	8 67	6 08	2 95	8 85
Mercer,	15 97	9 93	8 47	11 05	7 67	. . .	12 43
Montgomery,	. . . .	2 02	1 77	2 47	1 44	98	1 80
Northampton,	8 73	6 55	5 50	5 76	4 15	. . .	7 51
Perry,	14 00	9 80	7 07	9 49	6 30	. . .	8 05
Schuylkill,	20 19	5 73	4 68	5 25	4 28	3 75	
Union,	. . . .	8 12	7 47	8 29	6 34		
York,	2 70	2 26	1 83	1 99	1 61	. . .	1 94
Westmoreland,	28 00	14 00	10 57	12 46	9 33		

IRON ORE MINES.

Only three returns received.

No. 1. Boyer and Marble Hill ore mines. Operated by Henry Fulmer, Bucks county, (characteristics, &c., of works not given.)

No. 2. Chestnut Hill and Conestoga mines, Lancaster county. Owned and operated by C. B. Grubb & Son. Opened about 1832. Employ about 30 persons. Amount paid annually for wages of employés, about $8,000. Annual production about 8,000 tons. Average annual value of product, about $8,000.

No. 3. McClure mine, near Dillsburg, York county. Operated by J. G. & D. L. Jauss, Harrisburg, Dauphin county. The character of the ore is magnetic; tolerable good quality, but immense amount of rock veins through the ore vein formation, making it to a certain extent expensive mining. Slope 10 feet by 12 feet and 230 feet on slope line; dip, 20° northwest; about 6 transverse gangways crossing slope every 30 to 40 feet. Opened in 1876. Employ 20 persons. Amount paid annually for wages of employés, $10,000. Annual production, 5,000 tons. Average value of annual product, $12,500.

The following tables enumerate the number of persons employed and daily wages paid, &c.

Number of return.	Hours worked per day.	Weeks in operation during the year.	Number of Persons.						Daily Wages.					
			Foremen.	Ore miners.	Engineers.	Blacksmiths.	Dumpers.	Teamsters.	Foremen.	Ore miners.	Engineers.	Blacksmiths.	Dumpers.	Teamsters, (contract.)
1	10	52	. .	20	. .	1	. .	. .	. . .	$1 00	. . .	$1 15		
3	10	52	2	14	1	. .	1	2	$1 35	1 00	$1 35	. . .	$1 00	$3 50
Totals, ...			2	34	1	1	1	2						

Return *No. 2* has not classified employés, but states that they employ about 30 of all grades, whose daily wages range from 80 cents to $2 50.

ORE MINERS, ETC.,

NAME OF FURNACE.	BY WHOM OPERATED.	COUNTY.	Hours worked per day.	Weeks in operation during the year.	Bosses.	
					Number.	Wages.
Shoenberger,	Shoenberger, Blair & Co.,	Allegheny,	10			
Moselem,	Liebrandt & McDowell,	Berks,	10	52		
Gap,	Hollidaysburg and Gap Iron Works,	Blair,				
Eagle,	Curtins & Co.,	Centre,	10	46		
Logan,	Valentines & Co.,	do.				
Carlisle Iron Works,	C. W. Ahl & Son,	Cumberland,	10			
Paxton, Nos. 1 and 2,	McCormick & Co.,	Dauphin,	10	52		
Dunbar,	Dunbar Furnace Company,	Fayette,	10	52		
Lemont,	Hogsett, Hanna & Co.,	do.				
Oliphant,	H. & R. C. Oliphant,	do.	8	40		
Franklin,	Hunter & Springer,	Franklin,	10			
Mont Alto,	Mont Alto Iron Company,	do.	10	*26 52		
Greenwood,	Logan Iron and Steel Company,	Huntingdon,				
Chickies, Nos. 1 and 2,	Chickies Iron Company,	Lancaster,	11	52	1 2	$1 17 1 33
Conestoga,	Peacock & Thomas,	do.				
Donegal,	Benson & Cottrell,	do.	10	13		
Mount Hope,	A. Bates Grubb,	do.		48		
Lehigh Iron Company	Lehigh Iron Company,	Lehigh,	10	46		
Glamorgan, Nos. 1 & 2,	Glamorgan Iron Company,	Mifflin,	12	52		
Colerain Iron Works,	Charles F. Shoener,	Northampton,	10	52		
Pioneer, Nos. 1, 2 & 3,	Atkins Brothers,	Schuylkill,	10	52		
Union,	Beaver, Marsh & Co.,	Union,				
Charlotte,	Charlotte Furnace Company,	Westmoreland,	10	52		
Aurora,	Wrightsville Iron Company,	York,	10	12		
Robesonia,	Ferguson, White & Co.,	Berks,		52 1-7		
Kemble,	Kemble Coal and Iron Company,	Bedford,	10	52	1	¶50 00
Roekhill,	Roekhill Coal and Iron Company,	Huntingdon,				

* Wood choppers work twenty-six weeks.
† Wood choppers work five months.
‡ Chareoal burners work twenty-six weeks.
‖ Teamsters work fifty-two weeks.

AT BLAST FURNACES.

Ore miners.		Quarry-men.		Coal miners.		Wood choppers.		Charcoal burners		Teamsters.		Coke drawers.		Engi-neers.		Boys.	
Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
. . .	. . . .	50	$1 25														
50	. . . .	. . .	. . .	. .	. . . .	. . .	. . . .	. . .	. . . .	. .	. . . .	. . .	. . .	. .	. . .	4	$0 45
100																	
34	$0 90	. . .	. . .	. .	. . .	50	**$0 35	18	¶$26 00	. .	. . . .	. . .	. . .	. .	. . .	4	50
27	1 10	. . .	. . .	. .	. . .	71	1 25										
30	80																
. . .	. . .	30	1 25														
119	2 00	50	1 35	. .	. . .	. . .	. . . .	. . .	. . . .	6	$1 35	. . .	. . .	. .	. . .	2	50
175	1 50	. . .	. . .	. .	. . .	. . .	. . . .	. .	. . . .	. .	. . . .	. . .	. . .	1	$1 75		
85	1 50	2	1 20	8	1 50												
12	75																
41	75	. . .	. . .	. .	. . .	*160	. . . .	. . .	. . .	. .	. . . .	. . .	. . .	. .	. . .	12	40
13	1 10	. . .	. . .	. .	. . .	†100	** 30	‡ 32	¶ 32 50	‖7	¶ 25 00						
68	70	1	1 50	. .	. . .	. . .	. . . .	. . .	. . . .	. .	. . . .	. . .	. . .	1	80		
		7	1 00	. .	. . .	. . .	. . . .	. . .	. . . .	. .	. . . .	. . .	. . .	1	90		
														1	1 10		
44	1 00	6	1 00														
21	80																
2	§20 00	. . .	. . .	. .	. . .	. . .	. . . .	12	§20 00								
132	80	20	1 00	. .	. . .	. . .	. . . .	. . .	. . . .	. .	. . . .	. . .	. . .	.	. . .	14	40
120																	
75	80	20	1 05														
6	1 00																
40	††																
45	††	15	1 25	. .	. . .	. . .	. . . .	. .	. . . .	. .	. . . .	12	$1 75				
25	90																
16	1 20	. . .	. . .	. .	. . .	. . .	. . . .	. . .	. . . .	. .	. . . .	. . .	. . .	. .	. . .	2	60
130	. . . .	18	1 10														
121																	

§ Monthly wages $20—rent free.
** Price paid per cord.

¶ Monthly wages.
†† Price paid per ton.

ROLLING-MILLS.

Of the three hundred and forty rolling-mills in the United States, one hundred and thirty-eight are situated in the State of Pennsylvania. Of puddling furnaces—which is the primary process of converting pig metal in a rolling-mill into wrought iron—there were, up to the close of the year, four thousand five hundred and fourteen; two thousand two hundred and twenty-five of which are in this State. Of the above number, there are thirty-five rolling-mills in the county of Allegheny, containing seven hundred and ninety puddling furnaces, being 17.5 per cent. of the total number of furnaces in the country, and 35.5 per cent. of the total number in the State. Thus Pittsburgh stands as the great leading center of the iron manufacture of the country. The following interesting paper was read by William P. Shinn, Esq., of Pittsburgh, before the annual meeting of the "American Institute of Mining Engineers," held at Pittsburgh in May, 1879:

Pittsburgh—Its Resources and Surroundings

The site of Pittsburgh, from the first knowledge, by white men, of its location, has been regarded as a position of great strategic importance. One of its earliest visitors, and perhaps the first of which we have known record, was Washington, who, on November 24, 1753, stood on the point between the Monongahela and the Allegheny, and looked upon their junction as forming the key to the vast unknown country beyond. On February 17, 1754, the point was occupied by the erection of a stockade, a forerunner of the fort projected by Washington, but which never saw completion, as in less than three months thereafter the French, with an eye to the dominion of the Mississippi Valley, took possession, on April 24, 1754, of the unfinished stockade, and proceeded to erect Fort Duquesne. In 1755, the expedition under General Braddock, in its effort to wrest the position from the French, met with its sad defeat, which resulted in the death of its leader. The approximate location of the battle is now occupied by one of Pittsburgh's latest and most successful industrial enterprises, the Edgar Thomson Steel Works.

The French dominion lasted but four years and seven months, and on November 24, 1758, just five years after Washington projected the fort on this location, the French evacuated Fort Duquesne, and its remains were, on the next day, taken possession of by General Forbes, who immediately erected Fort Pitt, so called in honor of the Earl of Chatham, then Prime Minister of England, and from January 1, 1759, the place was known as "Pittsburgh," although it was not until 1764 that a plan of lots was laid out near the fort, and Pittsburgh began to take form. On April 22, 1794, Pittsburgh was incorporated as a borough, and in 1800 the census gives it 1,565 inhabitants. In the interval between the erection of Fort Pitt and

the year 1800, Pittsburgh had the usual experience of frontier towns, in being besieged by Indians, and otherwise harassed.

In the war of 1812, its resources were drawn upon for the arming of Perry's fleet upon Lake Erie, a portion of the cannon having been cast here, and the cordage furnished from rope-works then located at this point; and it is stated that a portion of the cannon and other munitions of war used at the battle of New Orleans, were furnished from Pittsburgh. During the war of 1846, with Mexico, Pittsburgh was again an important point of rendezvous for troops and for the furnishing of the munitions of war, but it was during the war of the rebellion that the importance of Pittsburgh to the war-making power of the country was most thoroughly demonstrated. From 1861 to 1864, the Fort Pitt foundry turned out 2,038 cannon and mortars, two of which were the then famous twenty-inch guns, known as "Columbiads," the only guns of that size then made in the world. When the rebels had taken possession of the Mississippi river, by the fortification of Island No. 10, it was to Pittsburgh that the Government looked for the supply of mortars with which to shell them out, and shelled out they were. In addition to the large number of cannon, the Fort Pitt works turned out, during the same time time, some 10,000,000 pounds of shot and shell. But "peace hath victories no less renowned than war," and it is to the industrial resources of Pittsburgh rather than to its capacity for destruction that I desire to call your attention at this time.

Population.

The relative rank in population occupied by the city of Pittsburgh has not been commensurate with its industrial importance.

Owing to the fact that the space between the rivers became at an early period in its history undesirable for residences, and partly also to the fact that the coal found in "Coal Hill" on the south side of the Monongahela made that a good location for manufacturing, a large portion of the manufacturing industries of Pittsburgh were located beyond the municipal limits, while a still larger proportion of the residences were to be found in Allegheny City, and in the suburbs of Pittsburgh.

The population of Allegheny county, as shown by the report of the ninth census, was at each decade from 1790 to 1870, as follows:

1790,	10,309	1840,	81,235
1800,	15,087	1850,	138,290
1810,	25,317	1860,	178,831
1820,	34,921	1870,	262,204
1830,	50,552		

What it is in 1879, I must leave mainly to conjecture, lest the census of 1880 might materially alter my estimate. But it will certainly be found to exceed 300,000. The population assigned to Pittsburgh in the census of 1870 was 86,076, which made it rank sixteenth in the list of cities of the United States, but Allegheny city had a population of 53,180, and the boroughs on the south side, now a portion of Pittsburgh, had a population of 28,047, so that the population in 1870 of what is now Pittsburgh, was 114,-

123, which would entitle Pittsburgh as a city, exclusive of Allegheny city, to the rank of twelfth in population in 1870. Allegheny county, in 1870, with its population of 262,204, ranked as ninth in population of the counties of the United States, being next below Suffolk county, Massachusetts, which includes Boston, and next above that of Hamilton county, Ohio, which includes Cincinnati.

Pittsburgh is most widely known as a place where passengers stop for breakfast *en route* between the seaboard and the great West, who, looking out at its canopy of smoke, express a wonder whether the sun ever shines there, and feel relieved when they are beyond its borders; but little do they know of the economic resources indicated by that smoke. Its sobriquet of the "Iron City," indicates the chief of its many industries, and in order to show that the term is one to which we are entitled, I commence my statement of its resources by reference to

Pig Iron.

The first blast furnace erected in the immediate vicinity of Pittsburgh, was located on Two-mile Run, near the present Shadyside station, on the Pennsylvania railroad. It was built by George Anshutz, about 1792, and was operated only about two years, as its location appears to have been a mistake, based upon the supposition that iron ore was to be found in that vicinity. It was not until 1859, that the second blast furnace, and the first of the existing furnaces in Pittsburgh, was built by Graff, Bennett & Co., on the south side of the Monongahela river, and known as "Clinton" furnace. The pig iron industry of Pittsburgh is, therefore, less than twenty years old at this date.

There are now twelve blast furnaces in Pittsburgh and its immediate vicinity, and three more in progress. The annual capacity of which, when the three named are completed, will be about 486,000 net tons of 2,000 pounds.

The furnaces are in detail, as follows:

Built.	Name.	Owned by	Height.	Bosh.	Capacity, tons.
1859,	Clinton, ...	Graff, Bennett & Co., . . .	45 feet.	12 feet.	14,000
1861,	Eliza, No. 1, ...	Laughlins & Co., ...	60 "	17 "	
1861,	Eliza, No. 2, ...	Laughlins & Co., ...	60 "	14 "	70,000
1863,	Superior, No. 1, . .	Superior Iron Company, .	45 "	12 "	
1868,	Superior, No. 2, .	Superior Iron Company, .	45 "	12 "	25,000
1865,	Shoenberger, No. 1,	Shoenberger, Blair & Co., .	62 "	13 "	
1865,	Shoenberger, No. 2,	Shoenberger, Blair & Co., .	62 "	13 "	48,000
1872,	Isabella, No. 1,	Isabella Furnace Company,	75 "	18 "	
1872,	Isabella, No. 2, . . .	Isabella Furnace Company,	75 "	20 "	80,000
1872,	Soho, ...	Moorhead, McClean & Co.,	65 "	19 "	31,000
1872,	Lucy, No. 1, ...	Lucy Furnace Company, .	75 "	20 "	
1877,	Lucy, No. 2, ...	Lucy Furnace Company, .	75 "	20 "	85,000
1879,	Furnace A, ...	Edgar Thomson Steel Company, (limited,) . .	65 "	13 "	25,000
1879,	Furnace B, ...	Edgar Thomson Steel Company, (limited,) . .	80 "	20 "	45,000
1879,	Furnace C, ...	Edgar Thomson Steel Company, (limited,) . .	80 "	20 "	45,000

The following table, compiled from the statistics of the American iron trade, as furnished by James M. Swank, Secretary of the American Iron and Steel Association, shows the proportion which the product of pig iron in Pennsylvania bore to that of the United States, and the proportion which the pig iron produced in Allegheny county bore to that of Pennsylvania, and the whole United States respectively, during the years 1874 to 1878 inclusive, all stated in tons of 2,000 pounds:

DATE.	UNITED STATES.	PENNSYLVANIA.		ALLEGHENY COUNTY.		
	Pig iron made.	Pig iron made.	Per cent. of United States product.	Pig iron made.	Per cent. of Pennsylvania product.	Per cent. of United States product.
1874, ...	2,689,413	1,213,133	45.11	143,660	11.84	5.34
1875, ...	2,266,581	960,884	42.40	131,856	13.72	5.82
1876, ...	2,093,236	1,009,613	48.23	128,555	12.73	6.14
1877, ...	2,314,585	1,153,356	49.83	141,749	12.29	6.12
1878, ...	2,577,361	1,342,633	52.09	217,299	16.18	8.40

From this statement it will be seen that the pig iron product of Allegheny county has steadily increased from 5.34 per cent. of the product of the United States in 1874, to 8.40 per cent., or almost exactly one twelfth, in 1878.

The amount of pig iron brought into Pittsburgh by rail and river during 1878, was 250,476 gross tons,

Equal to, ...	280,533	net tons.
Adding to this the pig iron made in Allegheny county during the year, ...	217,290	"
Makes a total of pig iron made and brought into Allegheny county during the year 1878, ...	497,832	"
Or 19.32 per cent., (nearly one fifth,) of the total product of pig iron for the United States. To this add		
Muck bars, ...	2,033	"
Blooms and billets, ...	35,791	"
Scrap iron, ...	64,536	"
And we have a grand total of	600,192	"

of pig iron, muck bars, blooms, billets, and scrap, most of which was consumed in Allegheny county during the year 1878, an amount nearly equal to one fourth of the whole pig-iron production of the United States for that year.

Rolled Iron.

The first rolling-mill in Allegheny county, owned by Christopher Cowan, was built in 1812, and known as the Pittsburgh rolling-mill; the second, the Union rolling-mill, (not the present mill of that name,) was built in 1819, and was accidentally blown up and permanently dismantled in 1829, the machinery being taken to Covington, Kentucky. This mill had four puddling furnaces, the first in Pittsburgh; it was also the first mill in Pitts-

burgh to roll bar iron, and was the largest and most extensive mill of the kind in the western country.

The Grant Hill iron-works were ereeted in 1821, by William B. Hays and David Adams, near where the eourt-house now stands.

The Juniata iron-works were ereeted in 1824, and were owned by Dr. Peter Shoenberger. The Sligo mill was erected in 1825, where it now stands, by Robert T. Stewart and John Lyon.

Pig metal for the supply of these mills was mostly brought from the Juniata valley, whieh also supplied them with blooms. The Juniata pig iron and blooms were hauled over the Allegheny mountains to Johnstown, usually on sleds in the winter season, and taken down the Connemaugh, Kiskiminetas, and Allegheny to Pittsburgh on the spring and fall freshets.

In 1821, Pittsburgh had eight rolling-mills, using 6,000 tons of blooms, chiefly from the Juniata valley, and 1,500 tons of pig metal. In 1856 there were in Allegheny county 25 rolling-mills and 33 foundries.

The six rolling-mills in existenee in 1826, employed 281 hands, and made 5,230 tons of iron, valued at $559,000, and consumed 561,700 bushels of coal. In 1879, the situation, in this regard, is as follows:

Number of rolling-mills completed,	34
Number of rolling-mills building, (at McKeesport,)	1
Number of common puddling furnaces,	769
Number of Dank's puddling furnaces,	11
Number of Siemen's puddling furnaces,	10
Total puddling furnaces,	790
Number of employés,	12,172
Annual capacity in tons,	500,000 tons.

The number of single puddling furnaees in rolling-mills in the United States, (eounting a double furnaee as equivalent to two single,) was, in 1878, 4,463, so that the number in Allegheny eounty was 17.7 per eent. of the number of puddling furnaees in the United States; while the number of rolling-mills in the United States being 340, Allegheny eounty eontained 10 per eent. of their number.

The following table shows the amount of rolled iron, ineluding sheets and nail plates, produeed in Allegheny eounty and in the United States during the years 1874 to 1878, stated in tons of 2,000 pounds:

Total Rolled Iron, Including Nails.*

YEAR.	UNITED STATES.	ALLEGHENY COUNTY.	
	Rolled iron.	Rolled iron.	Per cent. of U. S. product.
1874,	1,110,447	274,625	24.73
1875,	1,097,867	239,069	21.78
1876,	1,042,101	247,943	23.79
1877,	1,144,219	268,486	23.46
1878,	1,232,686	282,333	22.93

*The product given for Allegheny county in Mr. Swank's report, includes iron rails, but the only iron rails made in Allegheny county from 1874 to 1878, were of very light patterns, from 12 to 20 pounds, and but very small in quantity.

It will be seen, that the proportion of rolled iron, exclusive of rails, made in Allegheny county, has varied from 24.73 per cent., in 1874, to 22.93 per cent., in 1878, of the whole product of rolled iron, exclusive of iron rails, made in the United States. The falling off, in percentage, of the rolled product indicated since 1874, is mainly, if not wholly, owing to the fact that the wages paid puddlers and other rolling-mill expert labor in Pittsburgh, are from 30 to 50 per cent. higher than are paid for similar labor in rolling-mills east of Pittsburgh.

Six of the rolling-mills have connected with them nail mills, having an aggregate of 472 nail machines, which produced in 1874, 561,995 kegs of nails of 100 pounds each, and in 1878, 441,013 kegs; the former being 11.45 per cent., and the latter being 10.10 per cent. of the product of the United States; the reason for the reduced proportion being attributable to the same causes as that given for rolled iron.

Allegheny county has many specialties in iron among its manufactures, prominent among which are Messrs. Jones & Laughlin's cold rolled iron, for shafting, piston rods, etc.; Messrs. W. D. Wood & Co.'s planished sheet iron, the only successful rival of the Russia sheet iron; the tin and terne plate works of the United States Iron and Tin Plate Company, and Messrs. Kirkpatrick, Beale & Co., the only manufacturers of that material in the United States; and Andrew Kloman's Universal Mill for the manufacture of weldless eye bars and other bridge material, by a new and highly successful process, applicable to iron, but particularly successful with steel.

The specialties above enumerated are found nowhere else in this country, there being many other specialties manufactured here which are not, however, exclusively products of this county.

Steel.

Pittsburgh stands preëminently at the head of the crucible steel production of this country.

In 1813, there was a steel furnace here owned by Tuper & McKowan, which probably made only blister steel. In 1829, an Englishman named Broadmeadow, made blister steel at Pittsburgh, and about 1831 made a cast steel of low grade in pots of his own manufacture. His works were located at Bayardstown, now Fifth ward, near the old Fifth ward market-house.

Josiah Ankrim & Sons, filemakers, Pittsburgh, are said to have succeeded in making their own steel about 1830. In 1831 Messrs. Whitmore & Havens successfully produced blister steel at Pittsburgh. In 1833 the firm of G. & J. H. Shoenberger commenced to manufacture blister steel here. About 1840 the firm of Isaac Jones & William Coleman was formed at Pittsburgh, and manufactured blister and spring steel, which business they successfully prosecuted until 1845, when they were succeeded by Jones & Quigg, who built the Pittsburgh Steel Works. In 1846 Coleman & Hailman commenced the manufacture of blister and plow steel, and subsequently made all but first quality cast steel. In 1850 there were in Pennsylvania thirteen works, with an annual product of 6,078 tons, of which six

works, with a capacity of 3,278 tons, were in Pittsburgh. In 1853 the firm of Singer, Nimick & Co., which had been organized in 1848, was successful in producing the higher grades of cast steel for saw, machinery, and agricultural purposes. In 1859 Messrs. Hussey, Howe & Co. were successful in making crucible cast steel of the best quality; and in 1862 Messrs. Park, Brother & Co., accomplished the same result.

There are now in Allegheny county:

Crucible steel works,	12	
Having Siemens pot furnaces,	33, with	1,123 pots.
Coke holes,		223 "
Total,		1,346 "

Open-hearth furnaces, 4 completed, 2 erecting; total, 6.

The erection of the Edgar Thomson Steel Works, the only Bessemer steel-works in Allegheny county, was commenced by Carnegie, McCandless & Co. in the spring of 1873, and in 1874 the organization was changed in name to the "Edgar Thomson Steel Company, Limited." Their works, located at Bessemer Station, on the Pennsylvania railroad, and Baltimore and Ohio railroad, and on the Monongahela river, commenced operations on September 1, 1875. They have two Bessemer converters, blooming-mill, and rail and billet-mill, and a five-ton forge hammer. The company is also erecting three blast furnaces on its ground near the steel-works. This company, although its works have been in operation less than four years, reached in 1878 the largest output in rails and billets made by any works in the United States in any one year: and the largest output of Bessemer ingots made by any "two converter" plant in the world.

The production of the various qualities of steel in the United States and in Allegheny county respectively, during 1877 and 1878, were as follows, stated in tons of 2,000 pounds:

KINDS OF STEEL.	UNITED STATES.		ALLEGHENY COUNTY.			
	Total product.		Total product.		Proportion of U. S. product.	
	1877.	1878.	1877.	1878.	Per cent.	Per cent.
Bessemer steel ingots,	560,587	732,226	73,278	99,344	13.07	13.57
Open hearth steel ingots	25,031	36,126	800	1,025	3.20	2.84
Crucible cast steel, . .	40,430	42,906	24,747	27,365	61.34	64.95
All other steel, . . .	11,924	8,556	8,323	6,579	70.	76.90
Bessemer steel rails, .	432,169	550,393	54,635	72,246	12.65	13.13

Of the total product of Bessemer and open-hearth steel ingots in the United States, in 1877, there was made in Allegheny county 12.65 per cent.; and of the total product of United States in 1878, Allegheny county manufactured 13.06 per cent. Of the total product of crucible, cast, blister, and puddled steel manufactured in the United States in 1877, Allegheny county produced 63.16 per cent.; and of the product of United States in 1878, Allegheny county produced 66.93 per cent.

The percentage of product in open-hearth steel has heretofore been low, but there have been erected and put in operation since January 1, 1879, two open-hearth steel furnaces, one by Anderson & Co., and one by Hussey, Howe & Co.; two others are in process of erection by Shoenberger, Blair & Co., and Mr. Thomas S. Blair is about to start his open-hearth furnace at Glenwood, heretofore operated in connection with the manufacture of iron sponge. When the open-hearth furnaces now being erected are completed, Allegheny county will take the lead in open-hearth steel, as she has heretofore done in crucible steel.

Pittsburgh has many specialties in steel manufacture, the most important of which is probably the higher qualities of tool steel, which, during the past ten years, has almost entirely supplanted in the markets of this country the English tool steel, a result reached only after the most patient effort, and in opposition to the most determined prejudice of the manufacturers and users of tool steel.

It is notable also in connection with the Bessemer steel manufacture, that the steel for the cables of the East river bridge was manufactured here into wire rod by Anderson & Co., and that the steel for the Glasgow bridge, over the Missouri river, the first all-steel bridge in this country, was manufactured under the "Hay" process by the Edgar Thomson Steel Company, Limited, and rolled by Hussey, How & Co. and Andrew Klowman into the various shapes used in constructing that bridge.

Glass.

The third in importance of Pittsburgh's manufacture is glass. The first glass-house in Pittsburgh is said to have been operated in 1795, and was located near what is now called "Glass House Rittle," in the Ohio river. It is, however, on record that General James O'Hara and Major Isaac Craig commenced arrangements for the manufacture of glass in 1796 with an eight-pot furnace. In 1807, George Robinson and Edward Ensel commenced the manufacture of flint glass, and in 1808 they were sold out to Messrs. Blakewell & Page; their successors, Messrs. Bakewell, Pears & Co. having carried on the business to the present time.

In 1826, there were in operation in Pittsburgh and vicinity, seven glass-works, with a capacity of 27,000 boxes of window glass, and of flint glass to the value of $30,000.

The number of glass manufactories now in Pittsburgh is as follows:

	Furnaces.	*Pots.*	*Hands employed.*	*Value of annual product.*
Table ware,	24	242	1,895	$2,000,000 00
Window glass,	24	234	1,200	2,000,000 00
Flint glass bottles,	8	66	619	420,000 00
Glass chimneys,	9	90	790	500,000 00
Green glass bottles,	10	67	944	200,000 00
Total,	75	699	5,448	$6,120,000 00

The amount of glass manufactured in Allegheny county is about one half of the glass production of the whole of the United States.

Petroleum.

The refining of petroleum in Allegheny county was preceded some three years by the production, on quite a large scale, of coal oil by the distillation of bituminous coal and shales of this vicinity. Of these establishments the pioneer was the "North American," erected in 1858, followed by the "Lucesco," in the same year, and by the "Alladin," in 1859. All three of these, however, in 1860 and 1861 abandoned the distillation of coal oil, and began refining petroleum; and in 1860, there were within the limits of Allegheny county, ten refineries of crude petroleum; in 1861, there were seventeen added; in 1862, nine more were built; and in 1863, fifteen more, so that at the end of 1863, there were fifty-one refineries of crude petroleum in this county.

In 1865, the entire exportation from the United States to foreign ports of refined petroleum was 28,072,018 gallons, while the amount shipped east from Pittsburgh was 25,549,385 gallons.

In 1867, there were fifty-eight refineries in the city of Pittsburgh and suburbs, employing about seven hundred hands, and producing about 60 per cent. of the whole foreign exportation of petroleum. Since that time the number of refineries has considerably decreased, but their capacity has increased. In 1876, there were twenty-nine oil refineries in this vicinity, having one hundred and thirty-eight stills, with a weekly capacity of 126,371 barrels of crude petroleum, or about 95,000 barrels of refined oil, their annual capacity being about 4,560,000 barrels. This is a decrease from the number of refineries in 1866 of one half, but their capacity for production had increased in the aggregate to three times that of the refineries in 1866.

Coal.

Coal lies at the foundation of the manufacturing supremacy of Pittsburgh. It is to the liberal distribution of this mineral in the surrounding hills, of quality unsurpassed, and almost unequaled, for general use, and in quantity almost inexhaustible, as the expression is ordinarily used, located far above the water-level, where mining is cheap, and where mills can be located at the pit's mouth, that this vast industry in iron, steel, and glass is due. It is estimated that the bituminous coal field by which Pittsburgh is surrounded, and from which she derives revenue, has fifteen thousand square miles area within the State of Pennsylvania. The upper or Pittsburgh seam alone has been generally worked, while there are a number of other known seams at lower levels. The mines in the vicinity of Pittsburgh not only supply its own mills, but contribute largely to the supply of distant manufacturing establishments, reached by means of navigation, on the Ohio river. Coal was formerly floated down the river in large flat-bottomed boats, holding each about fifteen thousand bushels, or about five hundred tons of coal. Since 1850, coal has generally been transported in barges, the movement of which is controlled by tow-boats. A single boat will

transport from one hundred thousand to one hundred and thirty thousand bushels, or from four thousand to five thousand tons of coal.

According to Thurston, in 1876 there were in the city of Pittsburgh, and on the Monongahela river, and on the several railroads leading into Pittsburgh, one hundred and fifty-eight collieries, employing 16,629 men, and mining annually about 6,700,000 tons of coal.

The production of coal in the United States for 1878 has been estimated at 49,130,584 tons. Of this there was produced in Pennsylvania:

Anthracite,	17,605,262 tons.
Bituminous,	13,500,000 "
Total coal production of Pennsylvania,	31,105,262 "

being 63.3 per cent. of the whole coal production of the United States.

Coke.

The coal in the vicinity of Connellsville, known as the Connellsville field, is the best adapted for producing coke for smelting purposes of any yet discovered in the United States, and its product is used from Lake Champlain to the Rocky mountains, wherever smelting is carried on. Not only has it supplanted to a great extent the raw coals of the Mahoning and Shenango valleys in their own strongholds, but its use has been found advantageous as a mixture with anthracite coal in the furnaces of eastern Pennsylvania and New York. The Connellsville field occupies a space some three miles wide and fifty miles long, the vein being about eleven feet in depth and yielding some eight to nine feet of workable coal. The coal seam is known as the Pittsburgh bed of Professor Rogers' Report of the First Geological Survey of Pennsylvania, of 1842, and it appears to be, geologically, an extension of the true Pittsburgh seam before spoken of. This coke yields about eighty-nine to eighty-nine and a half per cent. of fixed carbon, and about nine per cent. of ash, with usually considerably less than one per cent. of sulphur.

The production of this article has been greatly stimulated within the past ten years. According to the latest information there are now 3,668 ovens in the Connellsville region, in addition to which there are about 550 ovens in and about Pittsburgh and along the Pennsylvania and Pittsburgh, Chicago, and St. Louis railways, making a total in the Pittsburgh and Connellsville region of about 4,218 ovens, with a daily capacity of 5,500 tons of coke.

The amount of coke made and shipped since 1875, according to the estimate of Messrs. H. C. Frick & Co., is as follows, stated in tons of 2,000 pounds:

1875,	666,495 tons.
1876,	770,758 "
1877,	869,429 "
In first six months of 1878,	538,856 "

Indicating a probable output of over 1,000,000 tons in 1878, an increase of fully fifty per cent. in the output since 1875.

When the ores of Virginia and Western Virginia are properly developed, their union at Pittsburgh with the Connellsville coke will make this for a generation to come the most prominent pig-iron producing center in the United States.

Lead.

The Pennsylvania Lead Company, whose smelting works were erected in 1875 for the purpose of producing lead from the base bullion brought from Colorado, Utah, and California, produced in 1878:

12,508 tons pig lead, valued at,	$1,010,640
874,461 ounces fine silver, valued at,	979,400
4,369 ounces fine gold, valued at,	96,118
211 tons copper matte, valued at,	18,592
Total value, product of 1878,	$2,103,710

The total lead product of the United States in 1878 was 81,500 tons, of which the Pennsylvania Lead Company produced nearly one sixth.

During the four months ending April 30, 1879, the value of the product of the works has been $1,149,506, the increased value being due to the large amount of silver in the bullion produced at Leadville. These works are located near North Mansfield, on the Pittsburgh, Chicago, and St. Louis railway, about six miles from this city. They treat base bullion produced in the Western States and Territories, the supply coming principally from Utah, Colorado, Nevada, and Montana, and the amount paid the railroad companies for freight during the first four months of 1879 amounted to $122,675.

White lead is a prominent article of Pittsburgh manufacture. In 1876 there were six white lead factories in operation, using, annually, about 5,000 tons of pig lead, and producing about 200,000 kegs of paint leads of twenty-five pounds each.

Copper.

There are two copper rolling-mills at Pittsburgh, and one copper smelting-works. The smelting-works were originally established to smelt the product of the famous Cliff mine. The two rolling-mills produce copper in its various rolled forms, consuming about 1,100 tons of cake and ingot copper, and producing from $600,000 to $700,000 worth of rolled and hammered copper per annum.

Pipe and Tubing.

There are five establishments engaged in the manufacture of wrought-iron pipes and boiler flues within the limits of Allegheny county. The establishment of the National Tube Works Company at McKeesport is probably the largest of the kind in this country. They turn out lap-welded tubes of a diameter as high as fifteen inches, and supply them of any length required for boiler flues.

The works of Spang, Chalfant & Co., are worthy of mention as using for their fuel, in puddling, the natural gas, brought some seventeen miles from the wells in Butler county. The capacity of production of the five works, is equal to 80,000 tons per year.

Locomotives.

There are in Pittsburgh and Allegheny City, two locomotive works. The Pittsburgh locomotive and car works in Allegheny City, manufacture locomotives of standard size as well as those of smaller type for narrow-gauge roads, while the light locomotive factory of H. K. Porter & Co., manufactures mine engines, switching engines, and other engines of light character.

Bridge-Works.

There are two establishments making their main business the manufacture of iron bridges in Pittsburgh. The Keystone Bridge Company, established in 1860, has a national reputation, being the largest works of the kind in the United States. The St. Louis bridge is a monument of its skill, both in constructing and erecting.

The Iron City bridge-works of Mr. C. J. Schultz, has done some very good work, prominent among which is the bridge across the Allegheny river of the Pittsburgh, Fort Wayne and Chicago railroad.

Of the numerous minor manufactories of plows and other agricultural implements, and machinery, bolts and nuts, spikes and rivets, cast iron pipe, iron and steel wire, chain cables, iron forgings, steam and gas fitting materials, safes, axles, &c., the limits of this paper would not suffice to make even brief individual mention. The excursions arranged by your committee of arrangements, will furnish you an opportunity to see but superficially the vast industries centered about the head of the Ohio, but if my brief statement of the resources of Pittsburgh and Allegheny county has sufficed to indicate their importance in the industrial development of this country, it will have accomplished its object.

A county which has produced one half of all the pig iron, and used an amount of pig iron, blooms, and scrap equal to one fourth of all the pig iron product, and which has produced over two ninths of all the rolled iron, (except rails,) over one eighth of all the Bessemer and open-hearth steel, two thirds of all the crucible, blister, and puddled steel, one half of all the glass, one eighth of all the coal, and one sixth of all the pig lead produced in the United States in 1878, may well be worthy of the attention of this body, representing the capital, the industry, and especially the metallurgical intelligence of this country; and I leave it to your judgment whether it was not well named by the lamented Lincoln, "The State of Allegheny."

One hundred and forty-one blanks were sent to rolling-mill firms, sixty-six of which only were returned. The small percentage of returns can only be accounted for upon the theory, that the recent revival in the iron business has so absorbed the attention of mill owners, that no time could be spared to fill up the blanks received. Those that were returned, are tabulated, as follows:

ROLLING MILLS

NAME OF MILLS.	LOCATION.		In what year built.
	TOWN OR CITY.	COUNTY.	
Etna Iron Works,	Etna,	Allegheny,	1828
Keystone Rolling-Mill,	Pittsburgh,	do.	1865
Pennsylvania Iron Works,	do.	do.	
Pittsburgh Forge and Iron Company,	Allegheny City,	do.	1867
Pittsburgh Iron Works,	Pittsburgh,	do.	1832
Solar Iron Works,	do.	do.	1869
Eagle Rolling-Mill,	do.	do.	1847
Allegheny and Monongahela Iron Works,	do.	do.	1864, 1866
American Iron Works,	do.	do.	1852
Anchor Nail and Tack Works,	do.	do.	1837
Birmingham Iron Works,	do.	do.	1836
Byers (A. M.) & Co.,	do.	do.	1862-3
Clinton and Millvale Rolling-Mills,	do.	do.	1846
Fort Pitt Iron and Steel Works,	do.	do.	1862
Glendon Rolling-Mill,	do.	do.	1857
Juniata Iron Works,	do.	do.	1824, 1857
Kensington Iron Works,	do.	do.	1828
McKeesport Iron Works,	do.	do.	1851
Ormsby Iron Works,	do.	do.	1863
Pittsburgh Bolt Works,	do.	do.	
Sable Iron and Nail Works,	do.	do.	1845
Sligo Iron Works,	do.	do.	1825
Soho Iron Mills,	do.	do.	1859
Superior Rolling-Mill,	do.	do.	1865
Union Forge and Iron Mills,	do.	do.	1862
Union Iron Mills,	do.	do.	1862
Vesuvius Iron and Nail Works,	do.	do.	1846
Wayne Iron and Steel Works,	do.	do.	1829
Star Iron Works,	Allegheny City,	do.	1862
Leechburg Iron Works,	Leechburg,	Armstrong,	1872
Apollo Iron Works,	Apollo,	do.	1850
Brady's Bend Iron Company,	Brady's Bend,	do.	1842
Valley Rolling-Mill,	Kittanning,	do.	1848
Gibraltar Forge and Rolling-Mill,	Robeson township,	Berks,	1843
Gibraltar Iron Works,	Near Reading,	do.	
Keystone Iron Works,	do.	do.	1856
McIlvaine & Sons Boiler Plate,	do.	do.	1857
Reading Bolt and Nut Works,	do.	do.	1865
Pine Iron Works,	Douglas township,	do.	1845
Philadelphia and Reading Rolling-Mill,	Reading,	do.	1868
Birdsboro' Nail Works,	Birdsboro',	do.	1848
Hamburg Iron Works,	Hamburg,	do.	1865
Maiden Creek Iron Works,	Blandon,	do.	1867
Reading Iron Works,	Reading,	do.	1836
Portage Iron Works,	Duncansville,	Blair,	1838
Altoona Iron Company,	Altoona,	do.	1873
Hollidaysburg Iron Works,	Hollidaysburg,	do.	1860
Juniata Rolling-Mill,	do.	do.	1866
Towanda Iron Manufacturing Company,	Towanda,	Bradford,	1872
Bristol Rolling-Mill,	Bristol,	Bucks,	1876
Fort Allen Iron Works,	Weissport,	Carbon,	1872
Bellefonte Rolling-Mill,	Bellefonte,	Centre,	1823
Eagle Rolling-Mill,	Roland P. O.,	do.	1828
Howard Iron Works,	Howard,	do.	1840
Milesburg Iron Works,	Milesburg,	do.	1830
Lukens Rolling-Mills,	Coatesville,	Chester,	1816
Thorndale Iron Works,	Thorndale,	do.	1847
Valley Iron Works,	Coatesville,	do.	1837
Brandywine Rolling-Mills,	do.	do.	1845
Hibernia Forge and Rolling-Mills,	Wagontown,	do.	1792, 1837
Laurel Iron Works,	Coatesville,	do.	1825
Parkesburg Iron Works,	Parkesburg,	do.	1873
Phœnix Iron Works,	Phœnixville,	do.	1808
Viaduct Iron Works,	Coatesville,	do.	1838

IN PENNSYLVANIA.

Number of puddling furnaces.	Number of heating furnaces.	Number of nail machines.	Number of persons employed at present.	When running full capacity, how many persons do you employ?	Actual capacity in tons.	Value of annual product.	Remarks.
26	7		450	450	14,000		Present firm commenced Dec. 1, 1879.
18	5		300	400	11,000	$660,000	
16	6		110	300			
18	5		223	315	15,000	450,000	
52	17		766	840	(2240 lbs) 30,000	1,600,000	
21	5		274	275	6,000	300,000	
17	2	50	63				
60	14				40,000		No report.
75	30	73			50,000		do.
20	5	96			10,000		do.
20	5						
26	3				15,000		do.
41	17	41			20,000		do.
20	15				12,000		do.
24	8				20,000		do.
29	8	92			18,000		do.
16	6				6,000		do.
8	16				4,000		do.
20	5				14,000		do.
24	7				15,000		do.
34	11	59			18,000		do.
27	10				16,000		do.
11	6				10,000		do.
30	16						do.
15	8				9,000		do.
21	10				27,000		do.
24	10	50					do.
28	7				Steel, 3,500 Iron, 10,000		do.
19	7				8,000		do.
9	3		136	125 to 150	2,500	220,000	
9	6						do.
28	12				20,000		do.
16	5	22			7,000		do.
	1		21		1,400	163,000	
	1		12	19	1,100		
6	2		80	90	3,900	225,000	
5	3		124	124	4,500	Estim'd 415,000	
	2		160	160	3,600	200,000	
	2		50	50	2,400		
12	10		184	184	25,000	897,000	
Double, 7	3	72					No report.
Double, 3	1				4,000		do.
Single, 3							
Double, 1	1				4,000		do.
Single, 3							
12	4	30			6,600		do.
9	2	32	30	100			Muck iron.
Double, 3	3				6,000		No report.
Single, 6							
8	3	18			3,500		do.
9	3	30			3,500		do.
Double, 3	3	24			1,500		do.
	2		36	70	2,500	175,000	do.
Double, 2	2				3,000		do.
Single, 1							
	1		8	8 to 10	1,800	About 180,000	
1	1		14	14	1,500	70,000	
6	2				3,600		do.
3	2				3,000		do.
Double, 3	4		114	130	6,000	350,000	
4	2		60	80	About 4,000		
Double, 4	4		150	150	4,800		
	2				2,000		do.
	1				1,000		do.
	4				4,800		do.
Double, 2	3				3,000		do.
Double, 20	23				25,000		do.
Single, 8							
3	8				11,000		do.

ROLLING-MILLS IN PENN

NAME OF MILLS.	LOCATION.		In what year built.
	TOWN OR CITY.	COUNTY.	
Berwick Rolling-Mill,	Berwick,	Columbia,	
Harrisburg Nail Works,	West Fairview,	Cumberland,	1831
Central Iron Works,	Harrisburg,	Dauphin,	1853
Chesapeake Nail Works,	do.	do.	1867
Paxton Rolling-Mills,	do.	do.	1869
Lochiel Rolling-Mill Company,	do.	do.	1865
Chester Rolling-Mills,	South Chester,	Delaware,	1874-5
Mount Hickory Iron Company, Limited,	Erie,	Erie,	1872
Old Fort Iron Works,	Brownsville,	Fayette,	1873
Green Ridge Merchant Iron-Mill,	Scranton,	Lackawanna,	1879
Susquehanna Rolling-Mill,	Columbia,	Lancaster,	1853
Penn Iron Company, Limited,	Lancaster,	do.	1873
Chickies Rolling-Mill,	Chickies,	do.	1864
Columbia Steel and Iron Works,	Columbia,	do.	1854
Lancaster Rolling-Mill,	Hempfield,	do.	1872
Pennsylvania Rolling-Mill,	Lancaster,	do.	1873
Safe Harbor Rolling-Mill,	Safe Harbor,	do.	1848
Etna Iron Works, Limited,	New Castle,	Lawrence,	1874
New Castle Iron Works,	do.	do.	1873
Shenango Iron Works,	do.	do.	1848
Vande, Sand & Capp,	Lebanon,	Lebanon,	
Lebanon Rolling-Mill,	do.	do.	1867
Allentown Rolling-Mill Company,	Allentown,	Lehigh,	1860
Catasauqua Manufacturiug Company,	Catasauqua,	do.	1864
Glen Irou Works,	Allentown,	do.	1870
Crescent Iron and Nail Works,	Cogan Station,	Lycoming,	1842
Jenkins, Schreyer & Co., Limited,	Williamsport,	do.	1879
Valentine Iron Company,	do.	do.	1873
Sharon Iron Works,	Sharon,	Mercer,	1862
Wheeler Iron Company and Rolling-Mill,	West Middlesex,	do.	1872
Greenville,	Greenville,	do.	1871
Stewart Muck-Mill,	Sharon,	do.	1870
Atlantic Iron and Nail Works,	do.	do.	
Wheatland Rolling-Mills,	Wheatland,	do.	1872
Logan Iron and Steel Works,	Logan,	Mifflin,	
Conshohocken, Penn'a & Corliss Rolling-M.,	Conshohocken,	Montgomery,	1832, 1852, 1863
Glasgow Iron Company,	Glasgow,	do.	1875 & 1876
Norristown Iron Works,	Norristown,	do.	1846
Schuylkill Iron Works,	Conshohocken,	do.	1857
Pottstown Iron Company,	Pottstown,	do.	
Potts Grove Iron Works,	do.	do.	1846
Fulton Rolling-Mill,	Norristown,	do.	1861
The Co-operative Iron and Steel Works,	Danville,	Montour,	1870
Glendower Iron Works,	do.	do.	1847
Penusylvania Iron Works,	do.	do.	1845
Easton Sheet Iron Works,	Easton,	Northampton,	1871
Lehigh and Franklin Wire-Mills,	South Easton,	do.	1836
Milton Nail Works,	Milton,	Northumberland	1875
Milton Rolling-Mill,	do.	do. do.	1872
Northumberland Iron and Nail Works,	Northumberland,	do. do.	1867
Duncannon,	Duncannon,	Perry,	1838
Philadelphia Rolling-Mills,	Philadelphia,	Philadelphia,	
Philadelphia Iron and Steel Company,	939 North Dela. ave.,	do.	1845
Gray's Ferry Iron Works,	Philadelphia,	do.	1858
Oxford Iron and Steel Works,	Frankford,	do.	1849
Delaware Rolling-Mill,	Philadelphia,	do.	1870
Tioga Rolling-Mill,	do.	do.	1872
Fair Hill Forge Rolling-Mill,	do.	do.	1854

SYLVANIA—Continued.

Number of puddling furnaces.	Number of heating furnaces.	Number of nail machines.	Number of persons employed at present.	When running full capacity, how many men do you employ.	Actual capacity in tons.	Value of annual product.	REMARKS.
11	2	. . . . .	116	116	5,000	$212,000	
Double, 9	3	73	335	335	10,000	400,000	
4	2	. . . . .	. . . . .	. . . . .	3,500	. . . . .	No report.
14	3	66	. . . . .	. . . . .	7,500	. . . . .	do.
Double, 5	5	. . . . .	. . . . .	. . . . .	8,750	. . . . .	do.
Double, 8	8	. . . . .	. . . . .	. . . . .	28,000	. . . . .	do.
Single, 4							
Double, 11	5	. . . . .	290	400	20,000	100,000	
15	4	. . . . .	168	185	Say 9,000	Say 405,000	
6	3	. . . . .	. . . . .	. . . . .	Tons, 9,000	. . . . .	No report.
. . . . .	1	. . . . .	15	15	900	55,800	
12	3	. . . . .	150	150	7,000	420,000	
8	4	. . . . .	250	250	9,000	650,000	
7	. . . . .	. . . . .	51	51	4,000	160,000	
Double, 2	7	. . . . .	. . . . .	. . . . .	15,000	. . . . .	No report.
Single, 12							
Double, 1	2	. . . . .	. . . . .	. . . . .	3,000	. . . . .	do.
Single, 5							
8	3	. . . . .	. . . . .	. . . . .	7,000	. . . . .	do.
Double, 16	8	. . . . .	. . . . .	. . . . .	12,000	. . . . .	do.
Single, 2							
25	5	55	262	300	10,000 to 12,000		
10	5	. . . . .	. . . . .	. . . . .	6,000	. . . . .	No report.
27	9	55	. . . . .	. . . . .	15,000	. . . . .	do.
3	2	. . . . .	34	70	4,500	98,000	
Double, 5	5	. . . . .	120	140	5,000		
Double, 23	12	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	No report.
Single, 2							
27	9	. . . . .	. . . . .	. . . . .	20,000	. . . . .	do.
Double, 6	3	. . . . .	. . . . .	. . . . .	7,500	. . . . .	do.
Single, 2							
3	2	7					
7	2	. . . . .	55	110	3,000		
. . . . .	2	. . . . .	. . . . .	. . . . .	4,000	. . . . .	No report.
29	9	46	539	. . . . .	16,000		
10	1	9	73	73	6,000		
12	3	. . . . .	140	140	7,000		
16	. . . . .	. . . . .	. . . . .	80	9,000	. . . . .	No report.
28	6	40	. . . . .	. . . . .	8,000	. . . . .	do.
12	14	. . . . .	. . . . .	. . . . .	45,000	. . . . .	do.
Double, 4	3	. . . . .	53	. . . . .	2,500	97,500	
Double, 6	7	. . . . .	225	225	6,000	500,000	
4	3	. . . . .	125	125	11,000		
Double, 5	3	. . . . .	119	119	(Of 2,000 lbs.) 5,000	200,000	
Double, 15	Heating, 12 Grate, 4 Anneal'g 6	. . . . .	462	462	12,000 to 15,000	600,000	
13	8	50	491	. . . . .	17,500		
Double, 5	3	. . . . .	116	120	6,000	320,000	
Double, 11	. . . . .	. . . . .	. . . . .	. . . . .	15,000	. . . . .	No report.
6	6	. . . . .	153	175	12,000 to 15,000	About 450,000	
14	7	. . . . .	. . . . .	. . . . .	15,000	. . . . .	do.
Double, 22	15	. . . . .	. . . . .	. . . . .	40,000	. . . . .	do.
Single, 16							
Single, 1	1	Sheet furnaces, 2	35	39	1,000	112,000	
Double, 1							
. . . . .	4	. . . . .	57	200	4,000 to 5,000	500,000	
5	1	16	. . . . .	. . . . .	. . . . .	. . . . .	No report.
6	1	. . . . .	. . . . .	. . . . .	2,000	. . . . .	do.
7	1	22	. . . . .	. . . . .	11,800	. . . . .	do.
16	6	54	320	350	7,100	300,000	
8	5	. . . . .	171				
5	7	. . . . .	133	300	10,000	700,000	
3	3	. . . . .	99	130	4,000	350,000	
. . . . .	4	. . . . .	130	150			
8	4	. . . . .	99	140	7,000	375,000	
Double, 2	1	Spike, 3	. . . . .	60	2,000	120,000	No report.
Double, 2	3	. . . . .	. . . . .	. . . . .	4,000	. . . . .	do.
Single, 1							

ROLLING-MILLS IN PENN

NAME OF MILLS.	LOCATION.		In what year built.
	TOWN OR CITY.	COUNTY.	
Kensington Iron and Steel Works,	Philadelphia,	Philadelphia,	1845
Pencoyd Iron Works,	Opposite Manayunk,	do.	1852
Penn Treaty Iron Works,	Philadelphia,	do.	1856
Winch's Rolling-Mill, Spike, & Bolt Works,	do.	do.	1874
Pottsville Rolling-Mills,	Pottsville,	Schuylkill,	1864
Greenwood Rolling-Mills,	Tamaqua,	do.	1865
Port Carbon Rolling-Mills,	Port Carbon,	do.	
Little Schuylkill Rolling-Mills,	Port Clinton,	do.	1868
Mount Carbon Rolling-Mills,	Mount Carbon,	do.	
Palo Alto Rolling-Mills,	Pottsville,	do.	1854
Schuylkill Haven Rolling-Mills,	Schuylkill Haven,	do.	1873
Scottdale Rolling-Mill,	Scottdale,	Westmoreland,	1873
Codorus Steel Works,	York,	York,	1869

SYLVANIA—Continued.

Number of puddling furnaces.	Number of heating furnaces.	Number of nail machines.	Number of persons employed at present.	When running full capacity, how many persons do you employ?	Actual capacity in tons.	Value of annual product.	REMARKS.
Double, 11	8	. . . . .	. . . . .	. . . . .	11,000	. . . . .	No report.
Double, 9	10	. . . . .	. . . . .	. . . . .	15,000	. . . . .	do.
6	6	. . . . .	. . . . .	. . . . .	4,000	. . . . .	do.
. . . . .	4	. . . . .	. . . . .	. . . . .	3,500	. . . . .	do.
23	12	. . . . .	335	700	20,000		
5	2	. . . . .	132	130 to 140	2,500	$60,000	
Double, 8	. . . . .	. . . . .	100	125	9,000		
Double, 1	1	. . . . .	. . . . .	. . . . .	2,000	. . . . .	No report.
Single, 2							
Double, 4	3	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	do.
Double, 12	9	. . . . .	. . . . .	. . . . .	15,000	. . . . .	do.
Single, 5							
. . . . .	2	. . . . .	. . . . .	. . . . .	3,000	. . . . .	do.
11	4	. . . . .	. . . . .	. . . . .	5,000	. . . . .	do.
10	2	. . . . .	. . . . .	. . . . .	7,500	. . . . .	do.

ROLLING-MILLS.—

NAMES OF MANUFACTURERS.	Weeks in operation during the year.	Manager.		Foremen.		Heaters.		Heaters' helpers.		Puddlers	
		Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
Spang, Chalfant & Co.											
Williams, Long & McDowell, . .	52	1	. . . . .	4	$3 50	10	*$0 72½ $8 23=24 sheet iron	22	$1 75	38	*$5 50
Everson, Magrum & Co., ...	. .	1	. . . .	1	2 00	7	*72½	. .	. .	29	*5 50
Pittsburg Forge and Iron Company	50	1	$5 00	1	3 33	10	*72½	9	1 15 to 2 50	33	*5 50
I. Painter & Sons, ...	51	1	10 00	3	3 00	30	*70	30	1 50	104	*5 50
William Clark & Co., ...	50	1	. . . . .	1	. . . . .	9	. . . . .	9	. . .	42	*5 50
J. W. Friend & Co., (Lessees,) . .	. . .	. .	. . . . .	1	. . . . .	1	. . . . .	4	1 50	17	*5 50
Kirkpatrick, Beale & Co., ...	52	1	. . . .	1	6 33	14	*72½	14	1 90	20	*4 70 and 5 50
S. Seyfert & Co., ...	37	. .	. . . . .	. .	. . . .	2	*1 00	2	*60	. .	. . .
S. Seyfert & Co., ...	26	. .	. . . . .	1	. . . . .	1	. . . . .	1	. . .	. .	. . .
Craig, Snell & Craig, ...	. . .	1	2 50	. .	. . . . .	2	*70	2	*48	12	*4 00
William McIlvaine & Sons, ...	. . .	1	**	2	*56	6	*1 12	6	*50	10	*4 00
J. H. Sternberg, ...	51	1	. . . . .	. .	. . . . .	2	*56	2	*28	. .	. . .
Joseph L. Bailey & Co., ...	52	1	7 00	2	7 00	4	4 00	4	2 00	. .	. . .
Phila. & Reading Coal & Iron Co ,	49	1	5 00	2	2 86	20	3 30	22	1 75	24	2 00
Portage, I. W., (op'd by H. I. & N. Co)	. . .	1	. . . . .	. .	. . . . .	.	. . . . .	. .	. . .	9	*4 00
Nevegold, Scheide & Co., ...	50	1	. . . . .	. .	. . . . .	2	. . . . .	5	. . .	. .	. . .
Valentines & Co., ...	40	. .	. . . . .	1	3 00	1	3 00	1	50	. .	. . .
Curtins & Co., ...	32	1	. . . . .	. .	. . . . .	1	*58	1	*35	1	*3 00
Huston, Penrose & Co., ...	48	3	. . . .	5	*63	7	*1 26	7	*60	12	*4 25
Thorndale Iron Works, ...	. . .	. .	. . . . .	2	5 00	2	4 50	2	2 25	12	3 50
C. E. Pennock & Co., ...	52	. .	. . . . .	8	. . . . .	8	. . . . .	8	. . .	16	. .
Berwick Rolling Mill Company, . .	. . .	1	. . . . .	2	. . . . .	4	*50 to 60	4	*27 to 30	22	*4 00
James McCormick Estate, ...	43	1	5 60	4	2 50	6	*50	6	*25	38	*4 50
Chester Rolling-Mill Company, . .	52	1	. . . . .	4	. . . .	10	*55	10	*33	46	*4 65
Mt. Hickory Iron Co., (Limited,) .	31	1	. . . . .	2	. . . . .	4	. . . . .	4	*30	30	*5 25
Spencer & Price, ...	24	1	2 00	. .	. . . . .	1	3 00	1	. . .	. .	. . .
Susquehanna Iron Company, . . .	52	1	. . . . .	1	. . . . .	4	*71¼	4	*36	24	*4 75
Penn Iron Company, (Limited,) . .	14	1	. . . . .	3	2 00	8	71	8	36	16	3 16
Becker & Reinhold, ...	. . .	1	3 00	. .	. . . . .	.	. . . . .	.	. .	14	4 75
Etna Iron Works, (Limited,) . . .	. . .	1	6 00	1	3 00	10	*55 to 70	10	. . .	50	*5 50
Vandesand & Capp, ...	50	1	. . . . .	1	. . . . .	1	*70	1	*35	3	*2 83
Samuel E. Light, ...	. . .	1	. . . . .	1	. . . . .	5	. . . . .	5	. . .	20	. . .
R. J. C. Walker. Jenkins, Schreyer & Co., (Limit'd) John N. Lauth, (Lessee.)	. . .	2	. . .	. .	. . . . .	.	*55	.	*31	. .	*3 85
Westerman Iron Company, ...	. . .	1	. . . . .	1	. . . .	8	8 00	8	1 75	58	*5 50
Wheeler Iron Company, ...	. . .	1	. . . . .	1	. . . . .	2	. . . . .	2	. . .	20	. . .
Kimberley, Carnes & Co., ...	. . .	1	. . . . .	. .	. . . . .	4	. . . . .	4	. . .	26	. . .
Logan Iron and Steel Company, . .	20 to 50	1	4 00	. .	. . . . .	2	*50	2	*25	8	*2 67
J. Wood & Brothers, ...	45	1	4 60	2	3 60	14	*50 99	14	*30 60	24	*4 90
Glasgow Iron Company, ...	50	1	‡5,000 00	1	‡1,800 00	6	*1 01	6	*46	16	4 25
James Hooven & Sons, ...	44	. .	. . . . .	1	1 72	4	l'ge m *93 sm. m'l 99½	4	. . .	20	4 65
Alan Wood & Co., ...	26 to 30	. .	. . . . .	6	6 00	23	3 50	17	2 00	60	3 60
Pottstown Iron Company, ...	51	. .	. . . . .	. .	. . . . .	16	3 50	16	1 65	56	3 00
Potts Brother Iron Co., (Limited,)	48	1	. . .	1	. . . . .	6	. . . . .	6	. . .	8	. . .
The Co-operative Iron & Steel W'ks.	. . .	1	. . . .	1	*12	12	*47	12	*21	12	*3 00
Oliver & Co., ...	52	1	. . . . .	1	. . . . .	1	*60	1	*30	4	*4 50

EMPLOYEE'S WAGES.

Puddlers helpers.		Muck rollers.		Bar rollers.		Roughers.		Catchers		Hookers.		Guide rollers.		Shearman.		Straighteners.	
Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number	Wages.
38	. . .	9	*$ 65	4	*$0 72½	8	$4 00	10	$4 00	2	$1 75	18	. . . . .	30	$2 00	8	$1 75
29	⅓ and 5p.ct	2	*55	1	*72½	1	. . . . .	1	*43	1	1 40	1	. . . . .	7	1 60	2	1 40
36	. . .	2	*60	2	*72½	8	. . . . .	10	*45	4	1 75	2	$4 00	6	1 60	8	1 75
104	$2 15	4	*60	2	*62½	. .	. . . . .	52	*35	8	1 40	26	*2 80	82	1 40		
42	2 00	2	*75	2	1 20	8	3 00	8	2 50	8	2 00	. .	. . . . .	3	2 00		
17	. . .	2	*60	.	. . . . .	. .	. . . . .	2	. . . .	2	. . . . .	. .	. . . . .	1	*25		
20	. . .	2	*50 and 55	.	. . . .	7	2 00	7	2 00	2	1 90	§6	7 00	10	1 50	2	1 40
. .	. . .	. .	. . .	2	*70	. .	. . . . .	2	. . . .	. .	. . . . .	. .	. . . . .	‖2	*43	2	*43
. .	. . .	. .	. . .	.	. . . . .	. .	. . . . .	1	. . . .	. .	. . . . .	1	. . . . .	.	. .	1	
12	. . .	2	1 60	.	. . .	2	1 30	2	1 30	2	75	. .	. . . . .	4	1 10	2	85
10	*1 30	2	1 75	.	. . . .	.	. . . .	8	1 25	. .	. . . .	. .	. . . . .	8	45	4	*45
. .	. . .	. .	. . .	2	*60	4	*35½	2	*20	2	*14	. .	. . . . .	2	1 25	2	*14
. .	. . .	. .	. . .	.	. . . .	. .	. . . . .	4	2 00	.	. . . .	. .	. . . . .	4	2 00	4	2 00
24	1 25	6	3 68	.	. . . .	. .	. . . . .	6	2 65	14	2 05						
9	. . .	1	*25	.	. . . .	. .	. . . . .	1	*20	1	1 00	. .	. . . . .	2	1 00	1	1 00
. .	. . .	. .	. . .	1	. . . .	2	. . . . .	4	. .	1	. . . . .	1	. . . . .	1	. . .	5	
						2											
. .	. . .	. .	. . .	1	1 50	. .	. . . . .	1	1 40	1	1 25	. .	. . . . .	2	1 25		
1	*2 00	1	*80	1	*75	1	*35	1	*35	1	*20	. .	. . . . .	.	. . .	1	*65
12	. . .	2	*27	4	*36	. .	. . . . .	6	*30	6	*30	. .	. . . .	3	*22	1 4	*30
12	1 75	2	1 60	.	. . . .	. .	. . . . .	2	1 40	2	1 25						
16	. .	.	. . .	.	. . . .	.	. . . .	8	. . . .	. .	. . . .	.	. . . . .	6	. . .	8	
22	. . .	2	*31	2	*45	4	*25	5	*25	5	1 10	1	5 00	4	*22	6	*21
41	¶35	2	*18	2	*46	4	*13½	10	*13½	4	*11	. .	. . . . .	3	*20	4	1 10
46	½	. .	. . .	.	. . . .	. .	. . . . .	.	. . . .	. .	. . . . .	4	. . . . .	2 4	40½		
30	. . .	2	*35	1	*72½	7	⅛ on guide, ⅛ on bar.	5	22 and 19¾	3	1 00	2	*3 15	2	*30	2	*12
. .	. . .	. .	. . .	1	2 00	2	2 70	1	1 00	1	75	1	3 00	2	2 00	2	2 00
24	½	2	*21	1	*36	5	*23	6	*19	.	. . . . .	2	*70⅙	2	2 15	2	1 35
16	1 59	2	1 65	2	40½	10	23⅕	4	18.9	3	94⅕	2	78½	4	1 25	6	1 08
14	1 62	2	1 85	.	. . . .	. .	. . . . .	2	90								
50	⅛ of 5 50	2	*68 to 75	2	. . . .	2	. . . . .	6	. . . .	6	. . . . .	2	. . . . .	3	. .	2	
3	*1 42	4	*40	1	*1 00	2	*40	1	*20	1	*15	. .	. . . . .	1	1 00	2	*15
20	. .	2	. . .	.	. . . .	. .	. . . . .	2	. . . .	2	. . . . .	. .	. . . . .	4			
. .	½	. .	*40	.	*60	.	*45	.	*45	. .	*20	. .	*1 00	.	*20	. .	*15
58	. . .	1	*68¾	1	*77⅛	7	*46¼	6	*36¼	6	small, 75 large, 1 40	2	†5 00 to 10 00	9	2 15	6	1 50
20		2	. . .	2	. . . .	3	. . . . .	3	. . . .	2	. . . . .	. .	. . . . .	2			
26	. . .	6	. . .	2	. . . .	4	. . . . .	4	. . . .	2	. . . . .	2	. . . . .	6	. . .	6	
8	*1 33	2	*30	1	*60	2	*28	.	. . . .	. .	. . . . .	1	*80	2	1 00		
24	. . .	4	2 00	4	50	.	. . . . .	14	60	8	57	14	plate, *99 sheet, 2 62	4	*65	5	1 50
16	¶33	. .	. .	2	*22	2	*20	2	*17	2	*10	. .	. . . . .	.	. . .	4	*14
20	. . .	2	*22⅕ *26½	2	33	2	large m, 22 small m, 40	4	20 32	6	1 20	2	66	3	12	6	1 25
60	1 90	6	1 80	7	2 80	. .	. . . . .	13	2 00	13	1 75	. .	. . . . .	10	3 50	13	2 00
56	1 55	4	2 00 2 50	.	. . . .	2	1 80 to 2 00	6	1 80 to 2 00	6	1 50 to 1 60	. .	. . . . .	1	†4 50 to 5 00	8	2 00
8	. . .	2	. . .	.	. . . .	. .	. . . . .	2	. . . .	2	. . . . .	. .	. . . . .	1	. . .	2	
12	⅓ *3 00	. .	. . .	3	53.60	2	*8	1	*7	4	*6	. .	. . . . .	2	39.1	1	*14½
4	½	1	*30	1	*45	. .	. . . . .	1	*30	1	*25	. .	. . . . .	.	. . .	1	*30

ROLLING-MILLS.—

NAMES OF MANUFACTURERS.	Weeks in operation during the year.	Manager.		Foremen.		Heaters.		Heaters' helpers.		Puddlers	
		Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
Stewart & Co.,	50	..	.....	2	$1 00 to 3 00	4	.....	4			
The Duncannon Iron Company...	...	1	‡3,000 00	3	‡1,067 00	7	*$0 52	7	*$ 26	32	*$3 50
S. Robbins & Son,	...	..	.....	3	3 44⅔	7	* 94	7	* 47	16	3 17
Philadelphia Iron and Steel Co.,	45	2	4 00	1	3 00	7	72	7	30	10	3 00
Edward S. Buckley,	50	4 clk	‡950 00	4	‡1,000 00	4	‡1,000 00	4	‡500 00	8	4 25
William L. & Harvey Rowland,	...	..	.....	3	.....	7	.....	.	....	..	...
Hughes & Patterson,	52	..	.....	..	.....	8	.....	8	....	16	...
Atkins Brothers,	52	1	.....	2	.....	20	*34 to 37	20	*17 to 19	92	*3 50
Greenwood Rolling-Mill Company,	23	1	.....	1	.....	3	1 07	3	54	13	375
Atkins Brothers, lessee,	...	1	‡1,800 00	1	‡600 00	..	.....	.	....	32	3 75

EMPLOYEE'S WAGES.

Puddlers helpers.		Muck rollers.		Bar rollers.		Roughers.		Catchers		Hookers.		Guide rollers.		Shearmen.		Straightners.	
Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
32	$\frac{1}{3}$	2	$\frac{4}{5}$0 15$\frac{3}{4}$	2	$\frac{4}{5}$0 29	9	*$\frac{3}{5}$0 24	11	$\frac{4}{5}$0 16	. .	. . . . .	2	*$\frac{3}{5}$0 90	9	$\frac{4}{5}$0 16	2	*$\frac{4}{5}$0 13
16	*1 73	28	1 22	3	64$\frac{1}{3}$	7	* 42	5	* 28	3	*$\frac{4}{5}$0 15$\frac{1}{3}$	1	* 78$\frac{1}{2}$	9	* 31	8	* 19$\frac{1}{2}$
10	2 00	2	* 25	4	40	14	24	8	24	6	15	4	30	4	1 50	11	20
8	. . .	2	1 62$\frac{1}{3}$	. .	. . . .	. .	. . . . .	2	1 48	2	1 48	. .	. . . . .	6	1 35	4	2 00
. .	. . .	. .	. . .	4	. . .	. .	. . . . .	9	. . .	. .	. . . . .	. .	. . . . .	1	. . .	6	
16	. . .	4	. . .	4	. . .	8	. . . . .	4	. . .	4	. . . . .	. .	. . . . .	4	. .	8	
92	. . .	2	2 25	2	* 5$\frac{1}{3}$	4	* 4$\frac{1}{3}$	2	* 4$\frac{1}{3}$	12	* 3	. .	. . . . .	.	. . .	3	12
				1	to		to		to	4	to					6	to
					6		5		5		3 3-10						16.2
7	‖ 27	2	* 35	. .	. . .	4	* 1 51	2	1 10	2	80	2	* 1 07	2	* 30		
								2	80	2	50			2	* 75		
								2	60					2	1 10		
32	$\frac{1}{3}$	2	2 25	. .	. . .	4	2 50	2	1 50	2	1 00	. .	. . . . .	4	1 00		

ROLLING-MILLS—

NAMES OF MANUFACTURERS.	Engineers.		Millwrights.		Blacksmiths.		Machinists.		Carpenters.		Nailers.		Feeders.	
	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
Spang, Chalfant, & Co. Williams, Long & McDowell, . .	3	$2 50	2	$3 00	2	$3 00	2	. .	1	. . .	. .	. . .	. .	. . .
Everson Macrum & Co., ...	4	1 60 to 2 25	2	2 25	2	1 50 to 2 45	. .	. . .	1	1 75	. .	. . .	. .	. . .
Pittsburgh Forge and Iron Co.,	1	3 00	1	3 33	1	1 70	1	2 00	1	1 50	. .	. . .	. .	. . .
	1	2 00	. .	. . .	1	2 50	1	2 50	1	1 75				
I. Painter & Sons, ...	9	1 75	2	2 00	3	1 50	2	2 25	3	1 60	. .	. . .	. .	. . .
William Clark & Co., ...	3	2 50 to 4 00	1	3 00	2	4 00	2	3 00	1	3 00	. .	. . .	. .	. . .
J. W. Friend & Co., (Lessees,) .	1	. . .	1	. . .	1	. .	. .	. . .	1	. . .	. .	. . .	. .	. . .
Kirkpatrick, Beale & Co., . . .	2	1 65	1	2 00	2	2 50	1	3 00	1	2 00	. .	. . .	. .	. . .
	2	3 00												
S. Seyfert & Co., ...	. .	. . .	. .	. . .	. .	. .	. .	. . .	1	1 25	. .	. . .	. .	. . .
S. Seyfert & Co., ...	. .	. . .	. .	. . .	1	. . .	. .	. . .	1	. . .	. .	. . .	. .	. . .
Craig, Snell & Craig, ...	2	1 50	. .	. . .	2	1 50	. .	. . .	1	1 40	. .	. . .	. .	. . .
William McIlvaine & Sons, . . .	4	1 50	. .	. . .	1	1 75	.	. . .	1	1 50	. .	. . .	. .	. . .
J. H. Sternberg, ...	2	1 70	. .	. . .	5	1 80	16	1 80	3	1 50	. .	. . .	. .	. . .
Joseph L. Bailey & Co., ...	.	. . .	. .	. . .	1	1 80	. .	. . .	. .	. . .	. .	. . .	. .	. . .
Phila. & Read. Coal & Iron Co.,	8	2 10	. .	. . .	3	2 30	3	1 80	2	1 65	. .	. . .	. .	. . .
Portage I. W., op. by H. I. & N. Co	1	1 75	. .	. . .	1	1 00	. .	. . .	. .	. .	. .	. . .	. .	. . .
Nevegold, Scheide & Co., ...	2	. . .	. .	. .	1	. . .	1	. . .	. .	. . .	.	. . .	1	
Valentines & Co., ...	. .	. . .	. .	. . .	. .	. . .	. .	. . .	. .	. . .	. .	. . .	. .	. . .
Curtins & Co., ...	. .	. . .	. .	. . .	1	1 50	. .	. . .	. .	. . .	. .	. . .	. .	. . .
Huston, Penrose & Co., ...	2	3 00	. .	. . .	2	1 75	1	4 00	. .	. . .	. .	. . .	. .	. . .
Thorndale Iron Works, ...	2	2 00	. .	. .	1	2 00	. .	. . .	. .	. . .	. .	. . .	. .	. .
C. E. Pennock & Co., ...	6	. . .	1	. . .	2	. . .	1	. . .	1	. . .	. .	. . .	. .	. . .
Berwick Rolling Mill Co,, ...	4	1 50 to 2 35	. .	. . .	2	1 60 to 1 85	. .	. . .	1	1 50	. .	. . .	. .	. . .
James McCormick's Estate, . . .	3	1 60	1	1 90	2	1 05	3	1 45	2	1 62½	27	4 80	40	1 20
					3	1 80								
Chester Rolling-Mill Co., ...	8	. . .	3	. . .	4	. . .	3	. . .	2	. . .	. .	. .	. .	. . .
Mount Hickory Iron Co., limited,	4	1 75	1	2 25	2	2 25	. .	. . .	1	1 25	. .	. . .	. .	. . .
Spencer & Price, ...	1	1 50	. .	. . .	. .	. .	. .	. . .	. .	. . .	. .	. . .	. .	. . .
Susquehanna Iron Co., ...	2	2 09	2	2 75	2	2 16	. .	. . .	. .	. . .	. .	. . .	. .	. . .
Penn Iron Co., limited, ...	4	2 00	. .	. .	6	1 50	2	1 50	2	1 25	. .	. . .	. .	. . .
Becker & Reinhold, ...	3	1 35	. .	. . .	2	1 50	. .	. . .	1	1 00	. .	. . .	. .	. . .

EMPLOYEE'S WAGES—Continued.

Firemen.		Laborers.		Boys.		Other employees.		Hours worked per day.	Price paid per ton by those working by the ton.	What rates were paid for same labor in 1872.
Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.			
5	$1 60	35	$1 25	10	90	6	. . . .	10		
						20	$1 50			
						12	1 75			
2	1 60	8	1 20	8	85					
2	1 15	60	1 15	12	63	1	1 25	10	. . . . .	30 per cent. more.
1	1 50					1	2 25			
						2	1 60			
16	1 50	160	1 12½	65	1 10	60	1 20	8		
							to	to		
							1 75	10		
4	1 75	32	1 50	24	1 10	70				
2	. . . .	10	1 25	. . .	. . . .	. .	. . .	10		
. . .	. . . .	3	1 40	4	85	14	1 60	. . . . .	. . . . .	About the same as is paid at present.
							to			
							2 00			
. . .	. . . .	1	1 00	. .	. . . .	2	*43	10		
		3	85	. . .	. . . .	2	1 00			
. . .	. . . .	. .	. . . .	. . .	. . . .	3	. . . .	10	From 43 cents to 88 cents per ton of rolls.	From 70 cents to $1 50 per ton of rolls.
. . .	. . . .	16	1 00	4	75	12	*25			
					to		to			
					85		57			
. . .	. . . .	45	1 05	. . .	. . . .	4	*56			
						12	*45			
. . .	. . . .	10	1 10	30	75	75	. . . .	10		
								to		
								11		
. . .	. . . .	8	1 40	1	75	17	1 40	10		
							to	to		
							2 00	12		
. . .	. . . .	12	1 00	14	75	23	1 10	10		
							to	to		
							3 00	12		
1	1 25	2	1 00							
. . .	. . . .	6	. . . .	. .	. . . .	. . .	. . . .	10	From *67c. to $2 00.	
. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	10	About 20 per cent. more.	
. . .	. . . .	1	. . .	. . .	. . . .	. . .	. . . .	12	Twenty per cent. over the ton column.	
. . .	. . . .	8	1 20	7	60	23				
. . .	. . . .	. .	. . . .	1	1 00	20	1 50	10		
								to		
								12		
. . .	. . . .	25	. . . .	. . .	. . . .	36	. . . .	10		
								to		
								12		
2	1 35	12	1 10	5	75	2	*16			
						4	1 35			
6	1 44	49	1 00	47	50	25	80	10		
					to		to			
					75		2 50			
2	1 20	36	1 20	6	90	101	1 20	10		
2	1 75	50	1 00	8	1 25	5	1 25	20		
			to		to		to	Day and		
			1 25		1 30		3 00	night.		
1	1 00	. .	. . . .	1	75	. . .	. . . .	10		
. . .	. . . .	30	1 00	6	57					
				30	50					
. . .	. . . .	60	90	27	50	64	. . .	10		
					to					
					1 08					
. . .	. . . .	8	1 00	4	65	. . .	. . . .	10		
								to		
								12		

ROLLING-MILLS.—

NAMES OF MANUFACTURERS.	Engineers.		Millwrights.		Blacksmiths.		Machinists.		Carpenters.		Nailers.		Feeders.	
	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
Etna Iron Works, (limited,)	3	$2 00	2	$2 00	2	$3 00	2	$2 00	2	$2 00	16	Paid by keg.	..	...
Vande Sand & Capp,	3	1 50	..	...	1	1 25	..	...	..	...	..	...	..	...
Samuel E. Light,	4	...	..	...	3	...	..	...	..	...	..	...	..	...
R. J. C. Walker.														
Jenkins, Schreyer & Co., (limited)	..	*25	..	...	..	*15	..	...	..	...	..	...	..	...
John N. Lauth, lessee.														
Westerman Iron Company,	4	2 00	1	2 00	5	2 50	6	2 00	2	2 00	14	6 00	40	$1 50
Wheeler Iron Company,	2	...	..	...	2	...	..	...	2	...	..	...	..	...
Kimberley, Carnes & Co.,	2	...	..	...	2	...	1	...	1	..	..	...	..	...
Logan Iron and Steel Company,	2	1 50	..	...	2	1 25	1	2 50	1	1 40	..	...	..	...
J. Wood & Brothers,	4	2 50	..	...	3	1 83⅓	1	3 40	1	1 65	..	...	..	...
Glasgow Iron Company,	2	2 00	..	...	1	2 45	..	...	..	...	..	...	..	...
James Hoover & Sons,	2	2 00	..	...	1	2 00	4	2 00	2	1 75	..	...	..	...
Alan, Wood & Co.,	12	2 00	..	...	4	2 10	4	3 50	2	1 75	..	...	..	...
Pottstown Iron Company,	6	2 20	..	...	5	2 00	6	2 00	6	1 65	38	†3 50 †4 00	100	†75 to 2 00
Potts Brothers Iron Co., (limited)	2	...	..	...	2	...	1	...	..	...	..	...	..	...
The Co-operative Iron and Steel Company.	3	1 57	1	1 25	2	1 62	1	2 25	1	1 25	..	...	..	...
Oliver & Co.,	2	2 25	..	...	1	2 00	..	...	..	...	..	...	..	...
Stewart & Co.,	..	...	..	...	1	...	..	...	1	...	..	...	..	...
The Duncannon Iron Company,	6	1 70	1	2 16	4	1 05	3	2 50	2	1 55	23	3 00	16	1 00
					4	1 75								
S. Robbins & Son,	3	2 50	..	...	2	2 38	4	2 62	..	...	..	...	..	...
Philadelphia Iron and Steel Co.,	3	2 50	1	2 00	2	2 00	1	1 50	..	...	..	...	..	...
Edward S. Buckley,	4	2 25	..	...	1	2 25	..	...	..	...	..	...	..	...
William L. and Harvey Rowland,	6	...	..	...	2	...	2	...	1					
Hughes & Patterson,	5	...	..	...	2	...	..	...	..	...	..	...	..	...
Atkins Brothers,	6	1 50	..	...	8	1 00	6	1 50	12	1 42	..	..	..	...
					8	1 50								
Greenwood Rolling-Mill Co.,	2	1 66⅔	..	...	1	1 50	1	2 50	1	1 00	..	...	..	...
							2	1 50	1	1 25				
Atkins Brothers, lessee,	2	1 41	..	...	2	1 35	1	1 50	1	1 25	..	...	..	...

Prices paid per ton. † Prices paid per day. ‡ Prices paid per annum. § Sheet roller.

EMPLOYEE'S WAGES—Continued.

Firemen		Laborers		Boys.		Other employees.		Hours worked per day.	Price paid per ton by those working by the ton.	What rates were paid for same labor in 1872?	REMARKS.
Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.				
3	. . .	30	$1 25 to 1 75	55	. . .	. .	. . . . .	10			
. .	. . .	8	1 00	2	$0 50	. . .	. . . . .	9½ to 12			
2	. . .	14	. . .	16	. . .	19	. . . . .	10			
. .	. . .	. .	. . .	10	75	. . .	. . . . .	10			
2	$1 75	61	1 25	60	55	172	$1 25				
2	. . .	. .	. . .	5	90	. . .	. . . . .	. . . .	. . . .	. . . . .	Average wages paid men, $1 60.
4	. . .	12	. . .	8	. . .	17	. . . . .	10			
. .	. . .	7	1 00	2	*16	2	1 10	10 to 12			
				3	*18						
				4	*15						
. .	. . .	67	1 24	7	1 00	10	Plate,* 60 Sheet,*1 73	10	. . . .	20 per et. more.	
. .	. . .	25	1 15	10	49	29	*10c. to 20	10 to 12			
. .	. . .	20	1 10	5	90	2	* 58	10			
						7	*2 00				
. .	. . .	100	1 30 to 1 40	12	50	100	†2 25 to 5 00	8-12	. . . .	25 to 30 per et. more.	
. .	. . .	10	1 10 to 1 15	30	50	119	1 10 to 2 25	10-12			
. .	. . .	. .	. . .	. .	. . .	72	. . . . .	12	. . . .	About 15 per et. more	
2	1 00	50	90	30	40 to 86						
. .	. . .	2	1 67	2	1 20	11	60c. to 3 10	12			
. .	. . .	. .	. . .	20	75	25	. . . . .	10 to 11	. . . .	. . . . .	Daily wages paid men, $1 00 to $3 00.
4	1 25	38	1 00	50	45 to 1 00	50	1 20 to 2 25				
. .	. . .	20	1 25	16	63	13	. . . . .	10 to 12			
. .	. . .	6	1 25	10	75	20	. . . . .	8 to 10			
. .	. . .	4	1 35	2	60	40	2 00	10			
. .	. . .	. .	. . .	8							
12	1 33⅓	. .	1 00	20	50 to 75	. . .	1 00, 2 00	10			
. .	. . .	13	1 00	47	50	12	1 25	8 to 12			
2	1 25	12	1 00	. .	. . .	. . .	. . . . .	10			

‖ Pilers. ¶ Prices paid per heat. ** Superintendent.

RECAPITULATION.

County.	Number of returns.	Heaters.	Heaters' helpers.	Puddlers.	Puddlers' helpers.	Muck rollers.	Bar rollers.	Roughers.	Catchers.	Hookers.	Guide rollers.	Shearmen.	Straightheners.	Engineers.	Millwrights.	Blacksmiths.	Machinists.	Carpenters.	Firemen.	Laborers.	Boys.	Other employees.
Allegheny	7	67	74	266	266	21	11	25	83	25	47	129	18	22	9	12	8	9	32	305	119	172
Armstrong	1	14	14	20	20	2	.	7	7	2	6	10	2	4	1	2	1	1	.	3	4	14
Berks	7	37	39	46	46	10	4	6	25	18	1	20	15	16	.	13	19	9	.	95	49	150
Blair	1	.	.	9	9	1	.	.	.	.	.	.	1	.	.	1	.	.	1	2	.	.
Bucks	1	2	5	.	.	.	1	.	1	1	.	2	5	2	.	1	1	.	.	.	.	6
Centre	2	2	2	1	1	1	2	1	4	2	1	1	2	.	.	1	.	.	.	1	.	.
Chester	3	17	17	40	40	4	4	4	2	8	.	9	12	10	1	5	2	1	.	33	8	79
Columbia	1	4	4	22	22	2	2	.	16	5	1	4	6	4	.	2	.	1	2	12	5	6
Cumberland	1	6	6	38	41	2	2	4	5	4	.	5	4	3	1	5	3	2	6	49	47	25
Delaware	1	10	10	46	46	.	.	.	10	.	.	4	.	8	3	4	3	2	2	36	6	101
Erie	1	4	4	30	30	2	1	7	.	3	4	2	2	4	1	2	.	1	2	50	8	5
Lackawanna	1	1	1	.	.	.	1	2	1	1	1	2	2	1	.	2	.	.	1	.	1	.
Lancaster	3	12	12	54	54	6	3	15	12	3	4	6	8	9	2	10	2	3	.	98	67	64
Lawrence	1	10	10	50	50	2	2	2	6	6	2	3	2	3	2	2	2	2	3	30	55	64
Lebanon	2	6	6	23	23	4	1	2	3	3	.	5	2	7	.	4	.	.	2	22	18	19
Mercer	3	14	14	104	104	9	9	14	13	10	4	17	12	8	1	9	7	5	8	73	73	189
Mifflin	1	2	2	8	8	2	1	2	.	.	1	2	.	2	.	2	1	1	.	7	9	2
Montgomery	6	69	63	184	184	18	15	6	41	37	16	19	38	28	.	16	16	11	.	222	64	339
Montour	1	12	12	12	12	.	3	2	1	4	.	2	1	3	1	2	1	1	2	50	30	.
Northampton	2	5	5	4	4	1	1	.	1	1	.	.	1	2	.	2	.	1	.	2	22	36
Perry	1	7	7	32	32	2	2	9	11	.	2	9	2	6	1	8	3	2	4	38	50	50
Philadelphia	5	33	26	50	50	36	15	29	28	15	5	24	37	21	1	9	7	1	.	30	36	73
Schuylkill	3	23	23	137	137	6	3	12	10	22	2	10	9	10	.	19	10	15	14	25	67	12
	55	357	356	1,176	1,179	131	83	153	285	171	99	287	181	174	24	131	86	68	79	1,183	738	1,342

RECAPITULATION.—Rolling-Mills Employees.

County.	Average Daily Wages.							Average weeks employed.	Average Earnings.						
									Yearly.						
	Heaters.	Puddlers.	Rollers.	Muck rollers, roughers, catchers.	Engineers, mill-wrights, blacksmiths, &c.	Other employees.	Boys.		Heaters.	Puddlers.	Rollers.	Muck rollers, roughers, catchers.	Engineers, mill-wrights, blacksmiths, &c.	Other employees.	Boys.
Allegheny,	$4 55	$3 20	$6 00	$3 41	$2 33	$1 53	$1 02	51	$1,392 30	$979 20	$1,836 00	$1,043 46	$712 98	$168 18	$312 12
Armstrong,	4 55	3 20	7 00	2 00	2 37	1 73	85	52	1,419 60	998 40	2,184 00	624 00	739 44	539 76	265 20
Berks,	3 42	3 00	. . .	2 12	1 78	1 44	75	43	882 36	774 80	. . . .	546 96	459 24	371 52	193 50
Blair,		2 67	. .	1 00	1 37	1 22									
Centre,	3 00	3 00	1 50	1 40	1 50	1 66	. . .	36	648 00	648 00	324 00	302 40	324 00	358 56	. . . .
Chester,	4 50	3 50	. . .	1 50	2 44	1 55	65	50	1,350 00	1,050 00	. . . .	450 00	732 00	465 00	195 00
Columbia,	. . .	2 67	5 00	. . .	1 80	1 25	75								
Cumberland,	. . .	2 75	. .	. .	1 56	1 23	63	43	. . . .	709 50	. . . .	. . . .	402 48	317 34	162 54
Delaware,	2 75	3 10	. . .	. .	. . .	1 29	90	52	858 00	967 20	. . . .	. . . .	. . .	402 48	280 80
Erie,	. . .	3 50	. . .	.	1 88	1 22	1 27	31	. . . .	651 00	. . . .	. . .	349 68	226 92	236 22
Lackawanna,	3 00	. . .	2 50	2 13	1 50	1 62	75	24	432 00	. . .	360 00	306 72	216 00	233 28	108 00
Lancaster,	3 55	3 16	. .	1 47	1 71	1 17	63	33	702 90	625 68	. . .	291 06	338 58	231 66	125 14
Lawrence,	3 10	3 20	. . .	. . .	2 19	1 50									
Lebanon,	3 50	2 83	. . .	. . .	1 44	1 10	50	50	1,050 00	849 00	. . . .	. . . .	432 00	330 00	150 00
Mercer,	8 00	3 20	7 50	. .	2 14	1 31	58								
Mifflin,	2 50	2 67	. .	. .	1 57	1 15	. .	35	525 00	560 70	. .	. . . .	329 70	241 50	. . . .
Montgomery,	3 50	3 30	2 80	1 97	2 12	1 89	59	44	924 00	871 20	739 20	520 08	559 68	498 96	155 76
Montour,	2 35	2 00	. .	. .	1 59	90	63								
Northampton,	. . .	3 00	. . .	. . .	2 12	1 82	79	51	. . . .	918 00	. . . .	. . . .	648 72	556 92	241 74
Perry,		2 33	. . .		1 70	1 40	72								
Philadelphia,	3 20	3 04	. . .	1 26	2 33	1 70	67	49	940 80	893 76	. . . .	370 44	685 02	499 80	196 98
Schuylkill,	. .	2 38	. .	1 29	1 41	1 10	54	38	. . . .	542 64	. . . .	385 32	321 48	250 80	123 12

County.	Average Earnings.						
	Weekly—(for 52 weeks.)						
	Heaters.	Puddlers.	Rollers.	Muck rollers, roughers, catchers.	Engineers, mill-wrights, blacksmiths, &c.	Other employees.	Boys.
Allegheny,	$26 77	$18 83	$35 31	$20 07	$13 71	$9 00	$6 00
Armstrong,	27 30	19 20	42 00	12 00	14 22	10 38	5 10
Berks,	16 97	14 88	. . .	10 52	8 83	7 14	3 72
Blair,							
Centre,	12 46	12 46	6 23	5 82	6 23	6 90	
Chester,	25 96	20 19	. . . .	8 65	14 08	8 94	3 75
Columbia,							
Cumberland,	. . .	13 64	. . . .	. . . .	7 74	6 10	3 13
Delaware,	16 50	18 60	. . . .	. . .	. .	7 74	5 40
Erie,	. .	12 52	. . . .	. .	6 72	4 36	4 54
Lackawanna,	8 30	. . . .	6 92	5 90	4 15	4 49	2 08
Lancaster,	13 52	12 08	. . . .	5 60	6 51	4 45	2 41
Lawrence,							
Lebanon,	20 19	16 33	. . . .	. . . .	8 31	6 35	2 88
Mercer,							
Mifflin,	10 10	10 78	. . . .	. . .	6 34	4 64	
Montgomery,	17 77	16 75	14 22	10 00	10 76	9 60	2 99
Montour,							
Northampton,	. . . .	17 65	. . . .	. . . .	12 48	10 71	4 65
Perry,							
Philadelphia,	18 09	17 19	. . . .	7 12	13 17	9 61	3 79
Schuylkill,	. . . .	10 44	. . . .	7 41	6 18	4 82	2 37

RECAPITULATION.—Rolling-Mill Employees, (Nailers and Feeders.)

COUNTY.	Number of returns.	NUMBER OF EMPOYEES.		AVERAGE DAILY WAGES.		Average weeks employed.	AVERAGE EARNINGS.			
							YEARLY.		WEEKLY—(for 52 weeks.)	
		Nailers.	Feeders.	Nailers.	Feeders.		Nailers.	Feeders.	Nailers.	Feeders.
Bucks,	1	.....	1	.....	.....	50				
Cumberland,	1	27	40	$4 80	$1 20	43	$1,238 40	$309 60	$23 82	$5 95
Lawrence,	1	16								
Mercer,	1	14	40	6 00	1 50					
Montgomery,	1	38	100	3 75	1 37	51	1,147 50	419 22	22 07	8 06
Perry,	1	23	16	3 00	1 00					

IRON AND TIN PLATES.

One Return.

The United States Iron and Tin Plate Works, Demmler station, McKeesport borough, Allegheny county, were built for the purpose of manufacturing tin and terne plates, (iron coated with tin or terne,) but on account of the Treasury Department decision, by which these plates are now admitted as pure tin, at $1\frac{1}{10}$ cents per pound duty: instead, as they should be, as iron coated with another metal, at a duty of $2\frac{1}{2}$ cents per pound, it is impossible to compete with foreign manufacturers, who do not pay half the wages we have to pay. We now manufacture fine sheet iron only, but as the works were not originally built for that purpose alone, we labor under disadvantages, as compared with home competitors. Nevertheless, we have secured a large trade for our present product, and several departments in our mill are running continually, twenty-four hours per day.

The tin and terne plates which were made at these works, (during the time when English manufacturers supposed to have sole control of the market, and prices were very high,) found the unanimous approval of dealers and consumers all over the country. The tin plate industry, if properly protected, would become one of the leading industries in the country, and fifty thousand people would be provided for.

These works were built in 1873 and 1874; have three puddling furnaces, and four charcoal fires; two bar-mill heating furnaces; two double tin-mill furnaces; and three annealing furnaces. Number of persons employed, 150. If tinning department were running, would employ 180 persons. Annual capacity, 3,000 net tons. Value of annual product, from $200,000 to $300,000.

The number of employés, and daily wages paid, in the mill department, are enumerated in the following tables, Nos. 1 and 2. The sheet-iron and tinning department, in tables Nos. 3 and 4:

Table No. 1.

Hours worked per day.	Weeks in operation during the year.	Heaters.	Heaters' helpers.	Puddlers.	Puddlers' helpers.	Rollers.	Catchers.	Hookers.	Shearmen.	Engineers.	Mill-wright.	Blacksmiths.	Machinist.	Carpenter.	Manager.	Foreman.
9 to 12	48	4	8	6	6	2	2	2	6	2	1	2	1	1	1	1

Table No. 2.

AVERAGE DAILY WAGES PAID.

Heaters.	Heaters' helpers.	Puddlers.	Puddlers' helpers.	Rollers.	Catchers.	Hookers.	Shearman.	Engineers.	Mill-wright.	Blacksmiths.	Machinist.	Carpenter.
$5 00	$1 50	$3 50	$2 20	$3 50	$1 30	$1 16⅔	$1 10	$2 00 and 2 75	$2 25	$2 25	$1 75	$1 50

The above, from heaters to shearmen, are paid by the ton of 2,240 pounds, which will about average the above daily wages.

TABLE No. 3.—Sheet Iron and Tinning Department.

NUMBER OF PERSONS EMPLOYED, &c.

Hours worked per day.	Weeks in operation during the year.	Tin plate rollers.	Tin plate doublers.	Tin plate heaters.	Tin plate catchers.	Cold rollers.	Cold rollers, boys.	Annealers.	Annealers' helpers.	Picklers and helpers.	Knoblers.	Firemen.	Boys.	Other employés.
8 to 12	48 to 52	4	6	6	6	1	6	1	2	3	8	2	18	50

TABLE No. 4.—Average Daily Wages Paid, and Price per Ton.

Tin plate rollers.	Tin plate doublers.	Tin plate heaters.	Tin plate catchers.	Cold rollers.	Cold rollers, boys.	Annealers, per ton.	Annealers' helpers, per ton.	Picklers and helpers, per ton.	Knoblers, per ton.	Firemen.	Boys.	Other employés.
$8 50	$3 00	$2 50	$1 50	$2 25	$0 75	$1 45	$0 50	$1 45	$6 10	$1 60	$0 50 to 1 25	$1 25 to 1 75

Tin Plate Roller's Scale, Showing Price Paid per Ton to Rollers, Heaters, and Shearers.

Gauges.	Roller.	Doubler.	Heater.	Shearer.	Total.
9—10,	$1 98	$0 90	$0 76	$0 99	$4 63
12—13,	2 07	94	81	1 03	4 85
14—15,	2 37	1 07	96	1 18	5 58
16—17,	3 17	1 43	1 20	1 58	7 38
18—20,	3 55	1 60	1 36	1 77	8 28
21—24,	3 93	1 79	1 44	1 96	9 12
25—26,	4 23	1 92	1 62	2 11	9 88
27—29,	4 32	2 06	1 77	2 16	10 31
30—31,	5 12	2 61	2 23	2 56	12 52
32,	5 35	2 41	2 08	2 67	12 51
33,	5 71	2 60	2 26	2 85	13 42
34,	6 45	2 84	2 50	3 22	15 01
35,	7 01	3 09	2 74	3 50	16 34
36,	7 68	3 41	3 01	3 84	17 94
37,	8 39	3 69	3 29	4 20	19 57
38,	9 15	4 00	3 65	4 57	21 37

BESSEMER STEEL WORKS.

The Bethlehem Iron Company, Bethlehem, Northampton county, is the only complete return received. The Edgar Thompson Steel Works, returned total amount of product.

THE BETHLEHEM IRON COMPANY, established in 1863.

The works comprise eight blast furnaces, including one leased, two rolling-mills, one hoop-mill, machine, carpenter, and smith-shops, and foundry. Total number of hands employed, including men at mines and stone quarries, twenty-five hundred; an increase over year 1878, of five hundred. Capital stock, $2,000,000. Amount paid for wages of employés is $730,663 30.

	Product.
Pig and spiegel iron,	82,392 2/20 tons.
Puddle bar,	12,369 14/20 tons.
Merchant steel,	15,343 13/20 tons.
Merchant iron,	893 tons.
Hoops,	892 tons.
Steel rails,	55,478 17/20 tons.

Average wages paid as follows:

	Per day.		*Per day.*
Foremen, various departments,	$1 58 to $6 00	Teamsters,	$1 00 to $1 53
Engineers, stationary,	1 26 to 2 00	Boys,	30 to 75
Firemen, (boilers,)	1 11 to 1 38	Foundry men,	1 25 to 2 25
Hands in steel-mill,	1 08 to 6 00	Machinists,	1 15 to 3 00
Roll hands, Rail-mill, Merchant-mill,	48 to 4 00	Carpenters,	1 25 to 3 00
Puddlers,	3 00 to 4 00	Blacksmiths,	1 35 to 3 20
Puddlers, helpers,	1 40 to 1 98	Blacksmiths, helpers,	1 04 to 1 14
		Brick and stone mason,	1 58 to 2 97
		Train hands and brakemen,	1 69 to 2 10
		Laborers,	85 to 1 24

LACKAWANNA IRON AND STEEL WORKS, Scranton, Lackawanna county, commenced in 1840. Comprise one hundred and thirteen puddling furnaces, thirty-five heating furnaces, and twelve trains of rolls. Product, heavy and light railroad iron, merchant bar iron, and car axles. Annual capacity, one hundred and twelve thousand net tons of rails, and thirteen thousand five hundred tons of merchant bar iron and car axles.

Bessemer steel department was added in 1875. Two five-gross-ton converters, four cupolas, and four spiegel furnaces. Annual capacity, eighty-five thousand net tons ingots.

PENNSYLVANIA STEEL WORKS, Steelton, Dauphin county, commenced operations June, 1867. Two six and a half gross-ton converters. Capacity, three hundred and fifty net tons steel every twenty-four hours. Daily capacity of rolling-mill, double turn, three hundred tons steel rails. Daily capacity of blooming-mill, double turn, three hundred tons rail blooms to supply the rolling-mill. Two Siemen's open hearth steel furnaces. One six and one twelve-ton hammers. Product, steel ingots, forgings, rails of heavy sections, street rails, and railroad axles, crossings, frogs, and switches. Capacity, one hundred thousand net tons ingots per annum.

CAMBRIA IRON AND STEEL WORKS, Johnstown, Cambria county. Iron department built in 1853. Forty-two double puddling furnaces, twenty-eight heating furnaces, and the following trains of rolls: 21-inch rail-mill, five sets; 18-inch rail-mill, two sets; 12-inch rail-mill, three sets; 16-inch merchant-mill, three sets; 22-inch puddle, six sets; and one 30-inch blooming-mill. Bessemer steel department commenced operations July, 1871. Two 7-ton converters and all the appliances for making rails. Two 10-ton Siemens-Martin open hearth steel furnaces with the Pernot modification. Product, iron and steel rails. Total capacity, per annum, one hundred thousand gross tons.

EDGAR THOMSON STEEL WORKS, Bessemer station, Allegheny county, commenced operations August, 1875. Two 7-gross ton converters; three cupolas; four spiegel cupolas; two 12-ton cupola ladles; twenty tubular boilers; hydraulic lifting machinery; twenty gas producers, and seven Siemen's heating furnaces; one 32-inch, 3 high blooming-mill, and 23-inch, 3 high rail train; with machine and smith shops attached.

Product, Bessemer steel rails, blooms, and ingots; daily capacity, double turn, 300 gross tons ingots, and 250 gross tons rails and billets. The finished product of Bessemer steel for the year 1879, was 106,286 tons.

United States Rail Imports for Eighteen Years.

Statement of the quantity, rate of duty, and amount of duty on imported iron, steel, and steel-headed rails, entered for consumption in the United States in each of the eighteen fiscal years ending with June 30, 1879, reported by Joseph Nimmo, junior, Chief of the Bureau of Statistics.

Iron Rails.

YEAR ENDING JUNE 30.	Tons. (2,240 lbs.) entered.	Rate of duty.	Amount of duty received.
1862,	6,236.2	$15 00 per 2,240 lbs.	$74,834 06
1863,	3,712.5	12 00 per 2,240 lbs.	44,550 30
	16,180.8	13 50 per 2,240 lbs.	218,440 76
1864,	104,299 4	13 50 per 2,240 lbs.	1,407,096 16
1865,	66,455.0	60 per 100 lbs.	923,130 72
	5,757.4	70 per 100 lbs.	90,276 85
1866,	21,526.7	60 per 100 lbs.	289,318 43
	57,546.5	70 per 100 lbs.	902,329 98
1867,	105,362.9	70 per 100 lbs.	1,652,090 37

Iron Rails—Continued.

YEAR ENDING JUNE 30.	Tons (2,240 lbs.) entered.	Rate of duty.	Amount of duty received.
1868,	140,060.1	$0 70 per 100 lbs.	$2,196,142 09
1869,	224,085.4	70 per 100 lbs.	3,513,658 49
1870,	288,802.3	70 per 100 lbs.	4,528,420 05
1871,	401,866.5	70 per 100 lbs.	6,301,266 44
1872,	395,388.0	70 per 100 lbs.	6,199,682 78
1873,	22,464.0	70 per 100 lbs.	352,235 02
	189,356.4	70, less 10 per cent.	2,672,197 18
1874,	34,726.4	70, less 10 per cent.	490,058 37
1875,	8,812.8	70, less 10 per cent.	124,366 05
	211.6	70 per 100 lbs.	3,318 67
1876,	272.2	70 per 100 lbs.	4,267 67
	5,115.3	70, less 10 per cent.	72,186 65
1877,	1,889.0	70, less 10 per cent.	26,657 82
	553.7	70 per 100 lbs.	8,682 69
1878,	792.0	70, less 10 per cent.	11,177 13

Steel Rails.

	Tons imported.	Rate of duty.	Amount of duty received.
1871,	18,731.3	45 per cent.	$439,210 80
	26,056.0	1¼ cents per lb.	729,568 81
1872,	105,214.3	1¼ cents per lb.	2,946,001 11
1873,	11,407.8	1¼ cents per lb.	319,418 73
	128,317.3	1¼, less 10 per cent.	3,233,596 75
1874,	130,386.9	1¼, less 10 per cent.	2,285,749 26
1875,	38,170.8	1¼, less 10 per cent.	961,903 82
1876,	1,039.1	1¼, less 10 per cent.	26,184 77
	4,914.5	1¼ cents per lb.	137,607 05
1877,	8.9	1¼, less 10 per cent.	224 83
	1,663.7	1¼ cents per lb.	46,707 71
1878,	1.9	1¼ cents per lb.	52 36
1879,	2,594.6	1¼ cents per lb.	72,649 34

Rails Partly Steel, (steel-headed.)

	Tons imported.	Rate of duty.	Amount of duty received.
1871,	236.0	1 cent per lb.	$5,286 62
1872,	4,598.2	1 cent per lb.	103,000 45
1873,	40.0	1 cent per lb.	806 93
	1,052.9	1, less 10 per cent.	21,226 18
1874,	25.3	1, less 10 per cent.	511 01
1875,	15.3	1, less 10 per cent.	308 30
1876,	16.5	1 cent per lb.	378 71
1877,	29.5	1 cent per lb.	661 38
1878,	8.4	1 cent per lb.	196 47
1879,	16.5	1 cent per lb.	369 30

STEEL MANUFACTURES.

No. 1, Black Diamond Steel Works, Park, Brother & Co., Pittsburgh, Allegheny county, established in 1862. Manufacture all varieties of crucible cast-steel. The works contain six puddling furnaces, twenty-seven heating furnaces, seven trains of rolls, twenty-one hammers, seven steel-cementing furnaces, three 42-pot Siemen's furnaces, two 24-pot Siemen's furnaces, one 30-pot Siemen's furnace, and twenty-four 2-pot steel melting holes. Annual capacity, fifteen thousand tons. Employ four hundred and eighty persons. Value of annual product, $1,500,000.

No. 2, Miller, Metcalf, & Parkin, Pittsburgh, Allegheny county. Erected in 1865 and 1866. In answer to the questions, "The number of each class employed, with the name or title by which they are known in the trade with the daily wages paid each class, and average time worked in the year," this firm reports that their business is not so arranged that they can answer.

No. 3, Nellis, Shriver & Co., Pittsburgh, Allegheny county, manufacture agricultural steels and irons, (specialties, cast tool steel, plowshares, and horse hay forks.) Works erected in 1870. Contains seven forges, seven heating furnaces, four 4-pot smelting furnaces, six hammers, two upright presses, one drop press, and other minor machines. Employ seventy-five persons. Amount paid annually for wages of employés, $27,000. Value of annual product, $125,000.

No. 4, Gautier Steel Company, (Limited,) Johnstown, Cambria county. Product, steel wire, springs, rake teeth, finger bars, and all kinds of steel used on agricultural machines. Built in 1878. Twelve heating furnaces, two hammers, and eight trains of rolls. Annual capacity, thirty thousand tons. Employ eight hundred and eighty persons. Amount paid annually for wages of employés, $251,000. Value of annual product, $2,526,738.

No. 5, Fairmount Steel Works, Foster & Cullen, Philadelphia. Product, best crucible cast and machinery steel, suitable for tools of every description; also steel and iron forgings to sketch or drawings. Three steam hammers, four 4-pot melting furnaces, and two heating furnaces. Built in 1876. Employ sixteen persons. Amount of product, one hundred and seventeen net tons. Capacity, four hundred and eighty-two tons. Value of annual product, $27,000.

No. 6, Midvale Steel Works, Philadelphia. Product, steel tires, forgings, castings, tool, machinery, and spring steel, etc. Have sixteen 4-pot steel

melting holes; one 30-ton converting furnaee; one 30-pot Siemen's gas pot melting furnaee; one 4-ton air furnace for melting pig; ten coal and four gas heating furnaces; one gas pot mufile, and one kiln for drying; two annealing, and four drying furnaces; six steam hammers, from eight tons to three hundred pounds; one tire rolling-mill; one 23-inch train, and one 12-inch train. Machine with usual tools, and five 80-ineh boring and turning mills. Annual eapaeity, about fifteen thousand tons east-steel. Employ about three hundred and forty-eight. When running full, five hundred persons.

No. 7, Erie Torsion Spring Company, Erie, Erie county, ereeted in 1867. Employ three persons. Annual amount paid for wages, $2,400. Amount paid for material used in business, $5,000. Value of annual product, $12,000. Produet, seat springs, wagon springs, and tongue springs.

The number of persons employed and daily wages paid, are enumerated in the following tables:

NUMBER OF PERSONS EMPLOYED, CLASSIFIED.

Number of return.	Hours worked per day.	Weeks in operation during the year.	Foremen.	Heaters.	Heaters' helpers.	Rollers.	Roughers.	Catchers.	Pudllers.	Pudllers' helpers.	Rollers.	Roughers.	Catchers.	Hookers.	Shearmen and straighteners.	Engineers.	Blacksmiths.	Machinists.	Carpenters.	Firemen.	Laborers.	Boys.	Steel melters.	Hammermen.	Wire drawers.	Other employés.
1	10	49	7	65	65	12	12	18	4	4	37	7	4	18	6	19	155	15	30	52	4
3	10	48	4	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	1	. . .	1	2	. . .	58	. . .	2	. . .	7
4	10	52	17	. . .	2	. . .	. . .	10	. . .	. . .	. . .	11	10	31	11	. . .	290	. . .	9	. . .	309
5	10	42	1	2	2	. . .	. . .	. . .	. . .	. . .	. . .	1	1	. . .	. . .	. . .	1	1	. . .	. . .	5
6	10	52	5	10	10	. . .	. . .	1	. . .	. . .	3	6	7	12	6	12	138	20	2	8	100
Total, ...			34	77	77	12	12	29	7	5	7	26	22	62	25	31	642	35	43	62	425
3	$2 50		. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	$2 00	. . .	$3 00	$2 00	. . .	$1 00	. . .	$2 75	. . .	. . .	$2 50
4	6 00		. . .	. . .	. . .	$6 00	. . .	. . .	. . .	. . .	. . .	. . .	. . .	$1 75	1 50	1 50	1 50 to 2 50	1 50	. . .	. . .	1 00	. . .	2 00	. . .	$3 50	*1 16 & 2 00
5	5 00		$1 50	$2 00	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	3 00	2 50	. . .	. . .	. . .	. . .	. . .	1 50	$0 50	. . .	. . .	$4 00	1 50 to 2 50
6	2 50		1 55	3 10	1 55	4 00	$2 50	$1 55	$1 00	$0 70	1 75	1 80	. . .	2 00	1 90	. . .	1 10	60	. . .	. . .	. . .	†

DAILY WAGES PAID EACH CLASS.

Number of return.	Foremen.	Heaters.	Heaters' helpers.	Rollers.	Roughers.	Catchers.	Hookers.	Shearmen and straighteners.	Engineers.	Blacksmith.	Machinists.	Carpenters.	Firemen.	Laborers.	Boys.	Steel melters.	Hammermen.	Wire drawers.	Other employés.
3	$2 50	. . .	. . .	. . .	. . .	. . .	. . .	. . .	$2 00	. . .	$3 00	$2 00	. . .	$1 00	. . .	$2 75	. . .	. . .	$2 50
4	6 00	. . .	. . .	$6 00	. . .	. . .	. . .	. . .	1 50	$1 75	1 50 to 2 50	1 50	. . .	1 00	. . .	2 00	. . .	$3 50	*1 16 & 2 00
5	5 00	$2 00	$1 50	. . .	. . .	. . .	. . .	. . .	2 50	3 00	. . .	. . .	. . .	1 50	$0 50	. . .	$4 00	. . .	1 50 to 2 50
6	2 50	3 10	1 55	4 00	$2 50	$1 55	$1 00	$0 70	1 75	1 80	. . .	2 00	1 90	. . .	1 10	60	. . .	. . .	†

Return No. 1 reports daily wages of skilled workmen from $2 50 to $15 per day; and unskilled from $1 to $1 25 per day. Return No. 2 does not classify employés nor give daily wages. Return No. 7 does not classify employés nor give daily wages, but states that he employs but three hands, whose annual wages amount to $2,400, averaging $800 per annum each. In column indicated by * in No. 4, there are 225 wire workers, annealers, cleaners, &c., paid $1 16 per day; 80 spring makers, at $2 per day, and 4 roll turners, at $2 50 per day. In No. 6, column indicated by †, there are 21 employés not classified, at $2 25 per day; the remainder are classified as follows: 6 ladlemen, 15 cents per ton; 8 hammermen, 28 cents per ton: 6 tongsmen, 14 cents per ton; 6 levermen, 16 cents per ton; 2 melters, 28 cents per ton; 10 pitmen, $1 35 per ton. For the balance, such as gasmen, chippers, tire rollers, hammer drivers, &c., the wages paid is not given.

Bessemer's process for converting pig-iron into steel was successfully introduced into this country in 1865, since which time a complete revolution in the manufacture of iron has been effected. There are eleven Bessemer steel establishments in the United States, five of which are in Pennsylvania. The first open-hearth furnace introduced into this country, for the manufacture of steel by the Siemens-Martin process, was in 1868, by Cooper, Hewit & Co., proprietors of the New Jersey Steel and Iron Company, of Trenton, New Jersey. The total number in the United States in 1878 was twenty-two, eight of which were located in Pennsylvania. Of its further increase, as applied to this State, Mr. A. L. Holly, one of the most eminent engineers identified with the introduction of steel manufacture in this country, writes, under date of January 14, 1880, as follows, to Mr. Swank, secretary of the American Iron and Steel Association:

"The Bethlehem Iron Company is just completing an additional converting plant, which will more than double its ingot capacity, It is completing a 24-inch steel train, and is building a heavier engine for its 21-inch merchant-steel train, which will increase its capacity. The Pennsylvania Steel Company is about completing a three-vessel Bessemer plant, which will more than double its ingot capacity. The Cambria Iron Company is about enlarging its vessels, so as to add ten or twelve per cent. to its ingot capacity. It is also getting out drawings for a new rail-mill, to be completed as soon as possible. It is building another 20-foot blast furnace for Bessemer pig. The Edgar Thomson Steel Company is just now enlarging its vessels and adding a cupola, which should increase its ingot output ten or fifteen per cent.

"Second, in regard to open-hearth steel-works: The Cambria Iron Company has lately started a pair of 15-ton Pernot furnaces, but the plant is still incomplete. When the Krupp washer, now building, is in operation, the ingot capacity will be at least forty thousand tons per year. Two similar furnaces are contemplated, to be begun when these are got into full work. The Bethlehem Iron Company has nearly completed a pair of 12-ton open-hearth furnaces, which, with the Krupp washer, or with the

Siemens direct process contemplated for preparing the material, will give an ingot capacity of about thirty thousand tons per year. The Pennsylvania Steel Company is, I believe, going to increase its open-hearth capacity. Spang, Chalfant & Co., Pittsburgh, have commenced building a pair of 10-ton Pernot open-hearth furnaces and a Krupp washer; also, a blooming train, and other trains, to make and work up twenty-five thousand to thirty thousand tons of steel per year. Park, Bro. & Co., are about starting a 10-ton opening-hearth furnace.

"Third, the open-hearth works started during the past eighteen months are: Kloman, Pittsburgh, one furnace; Hussey, Howe & Co., Pittsburgh, one furnace; Shoenberger & Co., Pittsburgh, one furnace; Anderson & Co., Pittsburgh, one furnace.

Fourth, the Pittsburgh Bessemer Steel Company, Limited, is erecting a Bessemer plant of about seventy-five thousand tons ingot capacity.

ARBITRATION AND CONCILIATION.

Conciliation and arbitration, as a means of settling disputes between employer and employed, is a subject of great importance, and one which seems to engage the attention of many people who have watched with interest the contests of the past—both in this and other countries. Its progress in this country has been slow, owing, possibly, to the fact that the broad domain, which invites and welcomes the labor of all, is not exhausted, nor will it be for many years to come. The diversity of employment, together with the continued opening up of new fields of wealth and industry, and the consequent rapidly improved facilities for travel and transportation, prompts the wage-worker as well as others to be continually moving. Scarcely a cemetery in all the land contains the dust of two successive generations, such is the migratory spirit of our people, so that when the fond recollections of early life forces upon the memory the scenes of youth and early manhood, and induces the desire to visit the graves of forefathers, miles counted by the hundreds intervene, which must be overcome ere the wish is gratified. But in manufacturing and mining sections, where the aggregation of wealth, under a specific head, engages to an extraordinary extent in the production of their respective industries, or where and when a number of individuals engaged separately in a special business, combine for purposes of regulating wages paid, and seek to enforce their conclusions to the exclusion of every other interest, a system of arbitration or conciliation cannot be otherwise than beneficial. In the apparent dawning and fruition of what may be hoped a permanent revival in the general trade and business of the country, and consequent advance in the price of various commodities, seldom is there a voluntary advance made in wages by the employer; but as the fires glow anew, and the heavily burdened trains and steamers travel to and fro in increased numbers, their influence penetrating every hamlet and village, increasing the demand for and also the prices of production, the wage-worker becomes restless and impatient, his swelling manhood demands an increase in wages. With a speculative selfishness, inherent in most of mankind, it is possible that his demand may be exorbitant, and, when thought so, non-complied with upon the part of the employers, and, as a result, arbitration or conciliation might be profitably resorted to in preventing strikes or lock-outs.

Differences existing between employers and employés, the settlement of which is brought about by such a method, implies a unity of action upon

the part of both sides; and unity of action implies organization, without which, in the premises, no satisfactory conclusion can be arrived at. The award, when made, usually bind large numbers upon both sides to a submission of its decree, the mission of which could not be fulfilled without a preliminary gathering, consultation, and agreement of all those whom it affects.

The system has been resorted to during the last twenty years or more in England to a greater extent than in any other country, owing, possibly, to the powerful labor organizations in existence there, through the directions of which long continued periods of idleness would occur over wages and other disputes. Boards of arbitration and conciliation exist for the settlement of disputes in the hosiery, glove, and lace trades; building trade, including its various branches; the coal and iron trade, etc. While Parliament has gone so far as to enact laws tending not only to the organization of these boards, but also to enforce their decrees. Notwithstanding, however, the fact that the laws of England provide compulsory legal powers, the fact is asserted by various writers upon the subject that the powers conferred have never been resorted to; but that during the last eighteen years the submission of disputes, as well as the decrees of the awards, have been voluntarily made and complied with by all the parties interested.

In a very interesting and able report made by Joseph D. Weeks, Esq., of Pittsburgh, to Governor Hartranft, under an appointment as commissioner, on this subject, to England, dated December, 1878, he says:

"In discussing this subject, it is very important at the outset to distinguish between arbitration and conciliation. Though the former is a generic word, and the one more commonly used in referring to the system, there is an essential and important difference between arbitration and conciliation. Unless this is clearly impressed on the mind, and the scope and working of each clearly understood, it will be impossible to learn the secret of the success that has attended these boards, and the reason of their continued existence. Arbitration deals with the larger questions of trade, conciliation with the smaller. Arbitration with the whole trade, conciliation oftener with the individuals. Conciliation is not formal. It does not attempt to sit in judgment and decide in a given case what is right and what is wrong, but its efforts are, in a friendly spirit, to adjust differences by inducing the parties to agree themselves. It removes causes of dissensions and prevents differences from becoming disputes, by establishing a cordial feeling between those who may be parties to the same. Conciliation in a word, may be defined as informal arbitration. Arbitration, on the other hand is formal. It sits in judgment. It implies that matters in dispute by mutual consent or by previous contract have been submitted to arbiters, and an umpire, whose decision is final and binding on both parties. Mr. Crompton, in his work on 'Industrial Conciliation,' says, when contrasting arbitration and conciliation, 'conciliation aims at something higher—at doing before the fact that which arbitration accomplishes after. It

seeks to prevent and remove the causes of dispute before they arise, to adjust differences and claims before they become disputes. A board of conciliation deals with matters that could not be arbitrated upon, promoting the growth of beneficial customs, interfering in the smaller details of industrial life, modifying or removing some of the worst evils incidental to modern industry, such, for example, as the truck system, or the wrongs which workmen suffer at the hands of middle-men and overseers.'

"It is this preventive feature that gives conciliation a value beyond estimation. It is a most admirable and praiseworthy object to provide means for settling disputes when they have arisen. It is much more desirable to prevent them from arising, and the tendency of conciliation is to do this, by removing the old feelings of bitterness, by inspiring respect for each other, and fostering, at the same time, a spirit of independence, and compelling a recognition of the dignity and worth of labor, and the necessity and beneficence of capital.

"And yet, after all that may be said in praise of conciliation, it is conceded, even by its warmest advocates, that back of all conciliation there must be arbitration. The time may come, and in the settlement of certain questions, generally will come, when no friendly offices are sufficient to enable capital and labor to see alike. Self-interest renders it impossible for either to decide fairly, and something more than a master of ceremonies or a conciliator is needed. There must be power to determine as well as hear. That is, arbitration must intervene, and its decisions accomplish what conciliation is powerless to bring about.

"To show the workings of arbitration and conciliation, I have given in the following pages a detailed account of the organization and operation of several of the most prominent boards. The records are mainly those of arbitration, not of conciliation, as in war it is the battles that are recorded, not the skirmishes and movements for position."

As it is possible that the report from which we extract the foregoing may not have reached the hands of many who would be interested in this subject, we deem it best to give Mr. Weeks' research upon this subject, in England, as applied to the industries which are the leading ones in our State, viz: coal and iron. Hence we quote as follows:

Arbitration and Conciliation in the Iron Trade.

"In two industries Pennsylvania stands prëminent among the States, viz: Those connected with the manufacture of iron and the mining of coal. It is also in these that labor troubles are most frequent, and the contests the most severe. If arbitration has been successful in averting or mitigating industrial strife in these trades in England, this fact should be a consideration of no small weight in favor of its trial here. In view of the circumstances, in none of the trades of England has arbitration and conciliation had a greater success than in these. This is especially true of the manufactural iron trades of England. The wages of all classes of labor in the English rolling-mills are settled, and have been for nearly ten years, by ar-

bitration. An award has just been given in South Staffordshire, reducing the price of puddling, and other wages, and the North of England arbitration board has decided on a corresponding decline.

"Some account of the establishment and practical workings of the Board of Arbitration and Conciliation in the North of England iron trade cannot fail to be interesting, as no severer test of the value of arbitration and conciliation can be found than in the circumstances accompanying its workings in this trade. This trade, including that of the Cleveland district, begun to assume importance as recently as in 1860. For ten years its growth was marvelous, and at the end of this time it rivaled many and surpassed most of the older centers of English iron manufacture. This wonderful growth, at a time when other districts were increasing, created a demand for labor that could not be met from the ranks of those already skilled in the various processes of iron manufacture, and workmen were drawn from all classes and grades of laborers. The result was a most heterogenous collection of workmen. There were no ties of friendship or locality. There were none of those attachments that long companionship causes men to form among themselves and for their employers, and even for the very tools with which they work. 'Earning higher wages than those to which they had been accustomed, unable to appreciate the difficulties incidental to a trade so liable as the iron trade to great and sudden vicissitudes.'* The result of this state of affairs can be easily imagined. It was endless disputes; strikes were of frequent occurrence. In 1865–66, there was both a lock-out and a strike, the latter lasting four months, and in the end nothing was settled, except that capital could hold out longer than labor. 'Between that time and the winter of 1868–69, repeated reductions in wages became necessary, and gave rise to feelings of resentment, which rendered it more than probable that any considerable increase in the demand for iron would be the signal for peremptory demands on the part of the workman.'† Trade began to improve in 1869, and the demand came. To avert the trouble, arbitration was suggested, and on March 22, 1869, the board was formed, and has continued in successful operation until the present time, and, for these ten years, has settled the wages and other industrial questions in this trade.

"This board consists of two representatives from each works joining it, one chosen by the owners of each works joining the board, the other by the operatives. It chooses from among its members, a standing committee, to whom all differences are in the first instance referred, and whose recommendations in minor matters are generally accepted. This committee, however, has no power to make an award except by mutual agreement of the parties to the dispute. All questions not settled by it, are brought before the board as soon as possible. In cases of re-adjustment of wages over the whole district, on one occasion two arbitrators had been chosen,

* From a paper read by Mr. B. Samuelson, M. P., before the British Iron Trade Association, February 24, 1876, page 4.

† Mr. Samuelson's Paper, pp. 5–6.

who intervened between the board and the independent umpire. The committee meets when there is any business. The board twice a year, or oftener if necessary. The expenses are paid equally by employers and employed. At the close of 1875, it represented thirty-five works, and thirteen thousand subscribed operatives. These works had nineteen hundred and thirteen puddling furnaces—more than all Pennsylvania, and half as many as the entire United States. During the year 1875, the standing committee investigated forty disputes. Since its organization there have been eight or nine arbitrations on the general questions of wages, and scores of references in regard to special adjustment of wages at particular works.

"Since 1874 this board, and the adherence of the workmen to its decisions, have been put to a severe test, and to their credit. it should be said that, with a few unimportant local exceptions, they have been loyal to the rules of the board. It is a well known fact that strikes and lock-outs generally occur on a declining wages market, and the real test of the value of any method of settling wages is not on an advancing market, but a falling one. The first action of this board was, under the umpireship of Mr. Rupert Kettle, to decree an advance of 6*d*. From its formation in 1869 to 1874, wages were advanced from 8*s*. per ton, for puddling, to 13*s* 3*d*. In 1874 the turn came; 9*d*. were first taken off. In the middle of the year 3*d*. added, and from that time there has been a constant decline in wages until now puddling is only 7*s*. per ton of twenty-four hundred pounds. That is, wages have been reduced, under the action of this board, without any serious difficulty, forty-seven and a half per cent.

"Does any one believe that this could have been peacefully accomplished without arbitration?

"The success of arbitration in the South Staffordshire Iron Trade has not been as marked, nor have its operations been as continuous as in the North of England. The board was originally formed by the two iron associations in the district, representing employers and employed, viz: The South Staffordshire Ironmasters' Association and the local branch of the Iron Workers' Union. The board represented only these associations, no attempt being made to give a representation or to allow a vote in selecting representatives to those who were outsiders and non-unionists. This course—unlike that of the North of England, where the operative members are elected by the vote of all the employés of the works, unionists and non-unionists—was the cause of the failure of the first board. "It was quite powerless to bind those men who were not in the Ironworkers' Union, even though the master himself was bound."

"Out of this failure has grown an organization known as the South Staffordshire Iron Trade Conciliation Board, now some three years old. Profiting by the former experience, it has avoided some of the errors of the old board, while retaining its valuable features. Its rules and constitution are not the same as in the North of England. The board consists simply of twelve employers and twelve operatives, but every works joining the board shall, if possible, have a representative of the employers and a rep-

resentative of the operatives. The board elects a president, not connected with the iron trade, whose duty it is to attend at meetings when questions are brought before the board to be settled, but to take no part in the discussion, beyond asking explanations sufficient to guide his judgment.

"Besides the president, there is a chairman and vice chairman, who are elected by the board from themselves, but whose functions are not clearly defined by the rules. Instead of a committee of inqury, the rules, which are not very precise, say, that, "In case of any difference arising at any works, it is intended that it shall be settled by the works representatives, but in case of their failing, it is open to them to refer it to the chairman, vice chairman, and the two secretaries, who may call the board together if they see fit."

"The president of the board is Mr. Joseph Chamberlain, M. P. for Birmingham, who has been quite successful as an arbitrator, and still retains the confidence of the operatives, though he has for several years been forced, by the state of the trade, to award reductions in wages. As the result of the discussion, at a meeting of the board, held October 7, 1878, wages were reduced to the point mentioned above. At this meeting, Mr. Capper, one of the workingmen's representatives, stated that the reductions conceded since January, 1874, amounted to $52\frac{1}{2}$ per cent. Mr. Chamberlain stated, however, that he had seen no reason to believe that any of his past decisions were wrong, or, in fact, that they were not such as were absolutely necessary, having regard to the state of trade. In the course of his remarks, he asked what was the intention and object of a board of arbitration? Surely it was to arrive at a fair decision, without the painful necessity of a strike. If this was so, he had to ask himself what would be the result of a strike, if there were no board. Suppose, for a moment, there were no board of conciliation to settle the matter, and that the employers thought themselves entitled to ask for a reduction to 7*s.* of the puddlers' wages. Did anybody doubt, that grievous as such a reduction might be to the work people, they would, under the existing state of trade, be obliged, in the long run, to submit to it? He was there rather as a conciliator than as a judge, and the feeling he had, that if there were no board, the operatives at the present time must yield to the demands made by the employers, did certainly weigh with him very much in considering the present application of the employers.

"At a meeting of the board, held since this report has been in press, the members on both sides expressed their continued confidence in the board, and their implicit faith in Mr. Chamberlain.

"As the two districts mentioned are among the largest and most important of the iron producing districts of Great Britain, I think I may confidently point to the success of arbitration in their iron mills, as giving strong grounds for predicting the success of arbitration in our iron works, were it tried. The fact that good feeling has been fostered, and severe reductions of wages accepted, without strikes, is abundant evidence of its value.

SECTION VI.

ARBITRATION AND CONCILIATION IN THE COAL TRADE.

"The working of arbitration and conciliation in the coal trade is somewhat different from its history in the iron trade. The nature of the work in collieries does not admit of so many different trades as in iron working, and, as a result, there are fewer unions. They are larger, more united, and in a better position to enforce any demand they may make. Though this is true, and though, further, there is not, with possibly an exception, a permanent board in this trade, there are many cases, during the last few years especially, in which differences have been adjusted by temporary boards or an arbitrator. The awards have not always been loyally accepted. It is too much to expect that they would be. The fluctuations in this trade in the last five years have been both rapid and large, and the strain on any system that could be devised would have been too great not to have caused it to give way at-times. Notwithstanding this, after a careful and thorough study of all the facts, I do not hesitate to say that arbitration and conciliation in the coal trade has been a success. The wonder is it has not failed oftener. There have been cases where both employers and employed have refused to submit their demands to arbitration, and there have been cases where the award, when made, has been rejected; but the exceptions are so few that it can be fairly said that for some years—until very lately—arbitration has settled the wages question in the coal trade, and both sides have abided its results.

"To illustrate its workings in detail in this trade, I have selected the Northumberland, Durham, and South Wales districts.

"In the Northumberland coal trade wages and other industrial disputes have been settled for some years by conference or conciliation between the mine owners and workmen, each side having its unions or associations. Since March, 1873, up to the close of 1877, a joint committee, consisting of six employers and six workmen, have settled all questions "of mere local importance affecting individual pits." This committee had no power to deal with the question of wages. When this was to be discussed, a board was created for the occasion, consisting generally of two arbitrators for each side, presided over by an umpire. Mr. Rupert Kettle, who acted in this capacity at an arbitration in 1875, defined the constitution of the court very clearly: 'We are one body of five, and if, by and by, it shall be found that you are two and two, and, therefore, cannot arrive at a conclusion, the decision will be with me; but until that time arrives you are the judges, and I am only assisting you.'

"The last arbitration in this trade in Northumberland was in July, 1877. In May, of this year, the employers gave notice of a reduction and a withdrawal of the allowance of free house and free coal. The men refused to permit the reduction, and, also, an offer to arbitrate, and twelve thousand of the fourteen thousand miners in the district went out on a strike. So bitter were the men against arbitration that their trusted leaders who sug-

gested it were hissed and hooted. After several weeks idleness, they, however, agreed to arbitrate.

"Two arbitrators were appointed on each side, with Mr. Farrer Herschell, M. P., as umpire. This arbitration was an important one as introducing new considerations as reasons for reductions. The employers did not rely upon the claim that there had been such a reduction in the selling price of coal as to justify a reduction in wages, but claimed it on the ground that other districts had advantages over them in the greater number of hours worked per day, and days per week, which, added to a higher wage they were compelled to pay, placed them at a decided disadvantage in the market. The award was in favor of the men, but it recommended that the men, in order to aid the pit owners to compete with other districts, should work six hours instead of five; at the face, twelve days per fortnight; to increase the out-put of large coal, and the throwing back of small coal. These recommendations practically discredited the umpires own decision, but they were faithfully adhered to by the employers, while the recommendations were carried out with little grace by the employés. A quarter of an hour was added to the working time, and the other recommendations were ignored.

"This arbitration was a most important one in its results. On the 24th of November of the same year, notice of a reduction of twelve and a half per cent. was posted, and the miners, refusing to accept, went on a strike on December 7. The employers refused to withdraw the notice, and, also, in view of the circumstances attending the last trial, refused to submit their case to arbitration. The men yielded so far as to agree to accept ten per cent., and arbitrate the remaining two and a half per cent., but this was refused, and, after eight weeks' strike, the men went to work at the full reduction. I have given this case in detail, as it is often referred to as showing the failure of arbitration. It certainly did not fail, for it was not tried, and no one who has had an opportunity to know the present feeling of the men doubts that there is trouble ahead. The employers, maybe, have been justified in the course they took. As to its wisdom, there is an opportunity for discussion.

"In the Durham coal trade, a much larger one than the Northumbrian, arbitration is in full operation, though it has been subject to a most severe strain in the large reduction of wages that have been decreed. This district has been described as one in which 'reason and calm discussion have preëminently taken the place of force.' The miners in this region number some fifty thousand. Beginning with March, 1872, up to May, 1873, wages had been advanced fifty-eight and one half per cent. In May, 1873, the decline began, wages being reduced ten per cent. In October, 1874, Mr. Russell Gurney, recorder of London, after a very exhaustive investigation, awarded a reduction of nine per cent. This was accepted, though not with very good grace. Mr. Kettle, says, he always expects a little sulking when the award is unpleasant. So great was the depression, that in February, 1875, only three months after the announcement of Mr. Gurney's award, another reduction was claimed, and five per cent. awarded.

At the close of the same year, Mr. Hopewood, M. P., was appointed arbitrator, and awarded, in February, ten per cent. reduction. In May, 1876, a notice of a reduction of ten per cent. was given and arbitrated. In August, six per cent., and in February, 1877, ten per cent. more. In March, 1877, a sliding scale was adopted for two years. Under this it was provided, that any differences that might arise, were to be settled by reference. All these reductions have been accepted, not always pleasantly, but nevertheless accepted; and under the sliding scale the men are now working, referring questions, as they arise, to be settled by conciliation.

"In South Wales, a strike occurred in 1875, lasting seventeen weeks, and involving one hundred and twenty thousand workmen, whose loss in wages was variously estimated at from £3,000,000 to £5,000,000. This was settled by conciliation. Immediately after this, as the result of an extended consultation, a sliding scale, based upon the selling price of coal, with a fixed minimum and maximum, was adopted; all other differences arising to be settled by arbitration. In 1876, several reductions resulted, which caused considerable dissatisfaction, and a vote of the members of the union was taken to get its views on continuing the scale, and abiding by its action. Eighteen thousand four hundred and seventy-five voted for it, and eight thousand nine hundred and thirty-four voted against it, though wages had been in some cases reduced thirty per cent. Late in 1877, the price of coal had fallen so low, that the "Coal Masters' Association" asked the men to consent to lower the minimum of the scale five per cent., which they did, confirming their action in February, 1878, and again in June.

"There have been other arbitrations than these in the coal trade all over Great Britain. In South Yorkshire and North Derbyshire, Mr. Mundella has arbitrated a number of disputes the present year. At Barnsly, an eight months' strike was settled by Mr. Whitwell and Mr. Mundella. There have been successful arbitrations in the coal trade at Ashton, Oldham, North Staffordshire, Cleveland, North of England, and Lancashire. In South Staffordshire, a sliding scale was adopted in 1874, but its working was not satisfactory, owing to the decline in coal being much greater than was expected. At Radstock there have been two awards, one by Mr. Kettle, and the other by Mr. Thomas Hughes, M. P. In North Wales there have been several arbitrations. In all these cases there has seemed to be an earnest desire, on the part of the leaders of the unions, to hold the men to the award, telling them that they were bound in honor, and threatening to withdraw from their positions if the men were false to their word."

Anthracite Mines.

In the first annual report of this Bureau, 1872–3, a very interesting account of the troubles and disputes between the miners and operators, during 1869–70–71, in the Schuylkill and other anthracite coal districts, is given by Mr. Tomlinson, who had charge of the labor department of the Bureau. The parties to the dispute were the Workingmen's Benevolent Association and the operators representing the Anthracite Board of Trade,

which included the coal associations of the southern coal fields of Schuylkill county, located at Pottsville: The Shamokin Coal Exchange, located at Shamokin; Mount Carmel Coal Association, located at Mount Carmel; and the West End Coal Association, located at Tremont. The dispute involved not only the question of wages, but, also, that of employing and discharging men, as the employers claimed the right to hire and discharge whom they pleased, while the men claimed that while that right might justly be conceded, still good cause should be shown for its full exercise, and which should not include the simple fact alone that a man was a member of their association, carrying out its resolutions and orders, thus acting for all; that where that spirit was shown beyond a doubt, then the W. B. A. would exercise the privilege of refusing to work until the restoration of their fellow member. The trouble became so embittered and varied in its character as to involve railroad and transportation companies, culminating in the Judiciary Committee of the State Senate attempting to make an investigation into the matter of coal transportation, its price, etc.; but to remedy the evils complained of, they had no power to do, under former decisions of the Supreme Court. The trouble continued, and as a final means of escape, arbitration was proposed, and agreed upon. Arbitrators on both sides were selected from the counties of "Carbon, Luzerne, Schuylkill, Columbia, and Northumberland, who met on the 17th of April, 1871, at Mauch Chunk, and choose Judge William Elwell, of Bloomsburg, for umpire, who attended their sessions in that capacity. E. W. Clark, on the part of the operators, and James Kealy, on the part of the workmen, formally presented their several claims and arguments in reference to the questions of interference with the works by the Workingmen's Benevolent Association, and of discharging men for their connection with the Workingmen's Benevolent Association, by the operators. The arbitrators failing to agree, the subject was referred to the umpire, who, at the next session, gave his decision, as follows:

Decision of Hon. William Elwell, Umpire.

"The umpire to whom was referred certain points in reference to control of collieries, upon which points arbitrators here present, chosen respectively by the operators and miners, have failed to agree, makes the following report:

"*First.* The right of an owner or lessee and operator of a colliery to the entire and exclusive control and management of his works is guaranteed to him by the law of the land, and is of such an unquestionable character that it ought not to be interfered with either directly or indirectly.

"*Second.* The umpire concurs with, and adopts as a correct statement of the law, that part of the late proclamation of the executive of this Commonwealth, wherein he says that 'it is unlawful for any person, or associations of persons, by violence, threats, or other coercive means, to prevent any laborers or miners from working when they please, and alike unlawful by such violence and threats to deter or prevent the owners or operatives

of mines from employing whomsoever they may choose to employ, and at such wages as may be agreed upon between the employer and the person employed.'

"*Third.* It is the undoubted right of men to refuse to work, except upon such terms as shall be agreeable to them; but a general understanding that no person of a particular association of laborers shall work for any operator who has in his employ a member of such association who has not paid his dues to the association, or who does not belong to such association, is contrary to the policy of the law, and subversive of the best interests of the miners and their employers. An association may inflict fines upon its members for breach of its by-laws, and expel for non-payment; but it has no right, by combined action, to place the defaulter in the light of an outlaw in the transaction of business with others.

"*Fourth.* The umpire decides that it is contrary to the spirit of the law, as stated secondly above, for a body of men to agree not to work because their employer refuses to employ a particular person, or because he has discharged such person. If such a case arises, where the act of the operator is deemed to be oppressive, and he refuses to redress the wrong, it is a proper one for local arbitration, by which, in most cases, the difficulty could be properly settled without the disastrous consequences arising both to the employers and the employed by a strike, even at one colliery.

"*Fifth.* As persons of sound mind and competent age are permitted by law to bargain for themselves, their contracts in regard to labor at the mines should be held as sacred as other contracts, and should not be annulled or set aside in any manner different from that provided for other cases. Interference by persons not parties to the contract is not to be tolerated.

"*Sixth.* Operators ought not, in any manner, to combine against persons who belong to the Miners' and Laborers' Benevolent Association. Any operator who refuses to employ a person because he is so connected, or shall discharge him for that reason, would thereby give good grounds for censure, and for other members to refuse to work for him.

"*Seventh.* No member of the Miners' and Laborers' Benevolent Association ought to be deprived of work because of his being selected by his branch to perform the duties mentioned in section three, article sixteen, of the by-laws of that association, if his duties are performed in the manner therein mentioned.

"*Eighth.* In regard to the right claimed by the miners to cease work when they see cause, whether in a body or otherwise, it is impossible to lay down any rule, and I am not aware that it is expected of me to do so; but I may be allowed to recommend that, after resumption again takes place, and business is again moving in its accustomed channel, that immediate steps be taken to provide for the adjustment of difficulties, if any shall arise in future, before they reach the disastrous proportions of those which now afflict not only the laborers and operators, but the whole country.

"*Ninth.* Wherever it is stated in the foregoing report that an act is unlawful, is censurable, or ought not to be, it is to be understood in the same manner as if the umpire had awarded that such act shall not be done nor allowed by either of the parties represented in this arbitration.

"WILLIAM ELWELL.

"MAUCH CHUNK, *April 19, 1871.*"

"About the same time, the manner in which the question of wages should be submitted to the umpire was agreed upon as follows, viz:

"*Articles of agreement made and entered into between the Anthracite Board of Trade and the Miners' and Laborers' Benevolent Association, on the 11th day of May, 1871:*

"We agree to submit for the decision of the umpire, Judge Elwell, the question of wages for Schuylkill county, for the year 1871, as follows:

"*First.* The operators' proposition as made in Philadelphia, namely: Basis at $2 50 at Port Carbon, with outside wages at $9 per week; inside wages at $10 per week; miners, by days' work, $12 per week; contract work to be reduced sixteen and one half per cent. from present rates. The advance or decline of wages to be one per cent. for every three cents advance or decline in the price of coal, to be graded on the new prices thus formed. Wages not to be less than would be paid with coal at $2 at Port Carbon.

"*Second.* The Miners' and Laborers' Benevolent Association's proposition: Three dollars at Port Carbon as a minimum, with wages as last year at that rate, namely: outside wages, $11 per week; inside wages, $12 per week; miners, by days' work, $14 per week; advance to be one per cent. for every three cents advance in the price of coal.

"We agree to the reference of the above propositions under the following conditions and terms:

"*First.* Each side to submit their proposition, with argument thereon, in writing, to the umpire.

"*Second.* Men to resume work at all the collieries immediately, the wages to be paid in accordance with the decision of the umpire.

"*Third.* Prices shall be obtained from a list of all operators shipping over twenty thousand tons of coal in 1870. Five operators shall be chosen from this list, by lot, on the tenth day of each month, (if Sunday, then the preceding day,) by four persons, two to be chosen by the Anthracite Board of Trade, and two by the Miners' and Laborers' Benevolent Association. The operators so chosen, shall forward to each side of the committee chosen as above, on or before the fifteenth day of the month, a statement of the average of sales of coal for the thirty days preceding, calculated at Port Carbon. They, the committee, shall meet on the fifteenth of the month, (or if Sunday, then the preceding day,) and announce, by circular, the average obtained from the statements so presented, and the wages for the current month shall be based upon the average so obtained. For the month

of May, the operators to furnish prices shall be chosen on the 20th instant, and the prices shall be furnished and announced on the 25th instant.

"*Fourth.* Provision is hereby made for future arbitration in the following manner: *First.* All questions of disagreement in any district, excepting wages, which cannot be settled by the parties directly interested, shall be referred to a district board of arbitration, to consist of three members on each side, with power, in case of disagreement, to select an umpire, whose decision shall be final. No colliery or district to stop work pending such arbitration. *Second.* If any question arises involving the whole county, a board of arbitration shall be chosen, consisting of five members on each side, with the same rights and duties as district boards.

"Signed on behalf of the parties hereto.

CHARLES M. HILL,
Secretary pro tem. A. B. of T.
WM. KENDICK,
President A. B. of T.
GEORGE CORBETT,
Secretary Schuylkill co. Ex. Board, M. and L. B. A.
JOHN W. MORGAN,
President pro tem. Schuylkill county M. and L. B. A.
JOHN P. FRANCIS,
THOS. LEONARD,
MICHAEL LAWLER,
Committee."

The Decision of the Umpire on the Question of Wages.

"The umpire mutually chosen by the Anthracite Board of Trade of the one part, and Miners' and Laborers' Benevolent Association of the other part, to decide the question of wages now at issue before them, having received and fully considered the written propositions and arguments of the parties, has decided and established the basis and rates of wages below mentioned, as in his judgment just, both to the operators and the men in their employ, viz:

Basis, $2 75, at Port Carbon.

Miners by days' work,	$13 00	per week.
Inside laborers,	11 00	"
Outside laborers,	10 00	"

"Contract work to be reduced ten per cent. upon the prices paid under the three dollar basis of 1869. Wages to be advanced one per cent. for every three cents advance in the price of coal at Port Carbon above $2 75 per ton, and to decline at the same rate when coal is below that price, down to $2 25 per ton.

"The articles of agreement under which the submission was made, together with the agreements and statements of the parties laid before me, are hereto attached.

"WM. ELWELL, *Umpire.*

"POTTSVILLE, *May 17, 1871.*"

The decision of Judge Elwell was acquiesced in, and all hands went to work; but in the following September the inside laborers in the employ of the Thomas Coal Company made a demand for an increase of wages, which demand was conceded, all of which was a plain violation of the compact. The men under the employ of this company having received an advance as demanded, caused others to follow in the same direction, notwithstanding the appeals of the leading members of the W. B. Association; but their influence had scarcely time to be felt, so precipitate was the demand and concession. This open departure from the plain provisions of the agreement put an end to boards of arbitration in that section, a repetition of the same procedure was deemed useless. Notwithstanding this failure, however, it did not prevent committees representing various sections of the anthracite region from meeting together and mutually agreeing upon a basis and price fixing and governing wages. Committees were appointed the following year, and for years afterwards, but of late they digressed from this procedure. The companies, however, continue to fix the wages paid upon the marketable price of coal at a given point, the wages to advance or decline in accordance with the advance or decline of the price of coal. The system is evidently a fair one. The only questionable feature is the absence of late, of representatives from each side, meeting annually, and by mutual conciliation fix both basis and wages. Mr. E. J. Gaynor, clerk for the mine inspectors, Pottsville, Schuylkill county, furnishes the following statement as the basis governing wages in the Schuylkill district:

"All employés of collieries are paid on the basis agreed upon three years ago in this region, namely, when coal sells at $2 50 at Port Carbon, the wages are as follows, viz:

Schuylkill Wages.

The wages paid on the $2 50 basis are as below:

Engineers,	per month,	$60 00
Firemen,	per week,	9 50
Blacksmiths,	"	11 00
Carpenters,	"	$9 00 to 12 00
Outside men,	"	9 00
Platform men,	"	$9 00 to 10 00
Dump chute men,	"	8 00
Dirt bank men,	"	9 00
Car loaders,	"	$11 00 to 13 00
Slate pickers,	" (boys,)	2 50
Slate picker boss,	"	9 00
Starters, (inside,)	"	10 50
Loaders,	"	10 00
Drivers,	"	10 00
Miner, when working by the week,		$11 70 to 15 00
Contract price per yard for driving gangways,		5 50 to 11 00
Contract price per yard for driving tunnels,		20 00 to 50 00
Contract price per wagon for cutting coal,		50 to 1 25

"On December, 1877, Mr. Gowen, president Philadelphia and Reading Coal and Iron Company, issued a eireular letter that after January 1, 1878, the employés would be allowed the benefit of advance in tolls on transportation of eoal, that for every raise of twenty-five cents in tolls an advance of ten per cent. in wages would be given—that is, when freight and tolls were $1 50 per ton, the minimum of wages would be twenty per cent. below basis; when freight and tolls were $1 75, the minimum would be ten per eent. below basis, and when freight, &c., had reaehed $2 00, the basis priees would be paid.

"This allowanee of participation in benefit of raise in tolls has been an act of generosity on the part of Mr. Gowen, not being any part of the agreement between the men and operators when basis was agreed upon."

The average price of eoal for each month during year 1879, as given by Sehuylkill Coal Exchange, with percentage below the basis, as also minimum basis as regulated by order of F. B. Gowen, Esq., President Philadelphia and Reading Coal and Iron Company, was as follows:

1879, Jan.,	Average priee of coal, $1 76$\frac{6}{10}$, . .	24 per cent. below basis.
	P. and R. C. and I. Co. paid at . .	20 " "
Feb.,	Average priee of coal, $1 77, . . .	24 per cent. below basis.
	P. and R. C. and I. Co. paid at . .	20 " "
Mareh,	Average price of coal, $1 73$\frac{2}{10}$, . .	25 per eent. below basis.
	P. and R. C. and I. Co. paid at . .	20 " "
April,	Average price of coal, $1 66, . . .	28 per cent. below basis.
	P. and R. C. and I. Co. paid at . .	20 " "
May,	Average price of coal, $1 66, . . .	28 per cent. below basis.
	P. and R. C. and I. Co. paid at . .	20 " "
June,	Average priee of coal, $1 68, . . .	27 per cent. below basis.
	P. and R. C. and I. Co. paid at . .	16 " "
July,	Average price of eoal, $1 65, . . .	28 per cent. below basis.
	P. and R. C. and I. Co. paid at . .	16 " "
Aug.,	Average priee of eoal, $1 66$\frac{35}{100}$, .	28 per cent. below basis.
	P. and R. C. and I. Co. paid at . .	12 " "
Sept.,	Average priee of eoal, $1 69$\frac{67}{100}$, .	27 per eent. below basis.
	P. and R. C. and I. Co. paid at . .	12 " "
Oct.,	Average priee of eoal, $1 79, . . .	24 per cent. below basis.
	P. and R. C. and I. Co. paid at. . .	12 " "
Nov.,	Average price of coal, $2 05, . . .	15 per cent. below basis.
	P. and R. C. and I. Co. paid at . .	8 " "
Dee.,	Average price of eoal, $1 93$\frac{6}{10}$, . .	19 per eent. below basis.
	P. and R. C. and I. Co. paid at . .	8 " "

Average priee of eoal at Port Carbon for year 1879, ... $1 $75\frac{5}{10}$

Average percentage below basis, as per Sehuylkill Coal Exehange, $24\frac{3}{4}$

Average pereentage below basis as, per P. and R. C. and I. Co., . $15\frac{1}{3}$

The collieries are drawn monthly to furnish the price of coal, the average

of which fixes the rate of wages, that is the percentage above or below basis prices.

Schuylkill Coal Exchange,
Pottsville, *December 5, 1879.*

The following collieries drawn to furnish prices of coal, to fix rate of wages to be paid in November, 1879, make the following returns as the prices of coal for that month:

Gilberton colliery,	$2 09
Knickerboeker colliery,	2 02
Glendower colliery,	2 00
Pine Forest colliery,	1 99
Draper colliery.	2 15 $\frac{13}{100}$

The average of these prices being $2 05, the rate of wages to be paid in November, 1879, is 15 per cent. below $2 50 basis. Freight and toll allowance makes price to be paid 8 per cent. below basis.

Having examined these returns and calculations, we find this result to be correct.

John Shippen,
John P. Hobart.
Committee.

The basis fixed by C. Parrish & Co. with their miners in the Wyoming region, running from November, 1879, through the following year, is given to us as follows:

"Coal selling at New York at or below $3 per ton; the following wages are paid:

"Miners, per car of 71 cubic feet, 61 cents. Seven cars is considered a day's work; out of this miner pays a laborer and other expenses.

"The following is given as a high average:

Miners, 7 cars per day@61 cents per car,	$4 27
Pay to laborer for loading,	$1 62
To other expenses,	30
Leaving a balance to miner for day's work,	$2 35

"The average number of days per month scarcely exceed 18 or 20.

"The following, under the above arrangement, is the amount paid to other employés:

Miners working by the day,	$1 73
Miners' laborers by the day,	1 45
Carpenters by the day,	1 73
Blacksmith by the day,	1 78
Engineers by the day,	$1 75 to 2 00
Runners by the day,	1 30 to 1 45
Drivers by the day,	95 to 1 35
Company inside laborers by the day,	1 30

Company outside laborers by the day, ... $1 18
Door boy, inside, by the day, ... $0 50 to 60
Breaker boy by the day, ... 40 to 95
Breaker men by the day, ... 90 to 1 25

"For every advance of one dollar per ton for coal in New York, wages are advanced ten per cent."

The following statement, showing the rates of wages, &c., is taken from the report for 1878, of T. D. Jones, mine inspector for Luzerne and Carbon counties, (south district.)

Showing the rates of wages paid at basis prices, coal selling at five dollars per ton in market.

[Wages to advance or decline at the rate of fourteen per cent. on every dollar or fraction of a dollar advance or decline in the price of coal at Port Johnson.]

	Basis at $5 00, 1875.	Basis, 1876.	Basis, 1877.	Basis, 1878.	Basis at $3 00, 1879.
Gangway, (timbered,) yer yard,	$6 12	$6 12	$5 50	$4 68	$4 40
Gangway, (not timbered,) pr. yd.	5 35	5 35	4 81	4 09	3 85
Chutes, per yard, ...	2 87	2 87	2 58	2 19	2 07
Cross-cuts, per yard, ...	1 91	1 91	1 72	1 46	1 38
Cross holes, from gangway to airway, ...	3 83	3 83	3 45	2 93	2 76
Airway, 25 square feet, per yard,	3 25	3 25	2 93	2 49	2 34
Miners, per week, ...	12 60	12 60	11 34	9 64	9 07
Miners' laborers in gangway, . .	11 60	11 60	10 44	8 87	8 35
Miners' laborers in breast, . . .	11 26	11 26	10 16	8 64	8 13
Miners' laborers, first class, . . .	10 80	10 80	9 72	8 26	7 78
Miners' laborers, second class, . .	9 90	9 90	8 91	7 57	7 13
Outside labor, fixed rate—					
Platform men working on breaker, per week, ...	9 60				
Second class men, per week, . .	9 00				
Third class men, per week, . . .	8 00				
Outside labor for January—					
Platform men, per week, . . .	. . . . .	. . . . .	. . . . .	. . . . .	6 90
Second class men, per week, . .	. . . . .	. . . . .	. . . . .	. . . . .	6 00
Third class men, per week, . . .	. . . . .	. . . . .	. . . . .	. . . . .	5 76

The rates of wages of inside hands are based at five dollars per ton for coal in market. During 1876 it was ten per cent. advance or decline for every dollar or fraction of a dollar advance or decline in the price of coal at Port Johnson. The basis for 1879 is the same as that paid in 1875, and the only difference is, that they employ fourteen per cent. on every dollar or fraction of a dollar advance or decline, in lieu of ten per cent. The miners working on contract work, get the coal with the price per lineal yard, which is forty-two and a half cents per ton, on the basis of five dollars per ton, the price realized for coal in market. That is, when coal averages five dollars per ton on board vessels in New York waters, the prices paid for inside work are as follows: For Mammoth vein coal, per ton of forty-eight cubic feet, 42½ cents; miners wages per week, $12 60; laborers wages, $9 90 to $10 80. As coal advances or declines in price

from five dollars, so shall the price vary at the rate of fourteen per cent. for each dollar of such advance or decline.

Ten per cent. has been taken off the five dollar basis, to equal the rates in the 1877 column.

Twenty-three and a half per cent. has been taken off the five dollar basis, to equal the rates in the 1878 column.

Three dollars per ton for coal is equal to twenty-eight per cent. off the five dollar basis, to equal the rates for January, 1879, in the 1879 column.

In view of the probable activity in this trade for the ensuing year, the New York *Engineering and Mining Journal* of January 3, 1880, says: "The sudden expansion of the coal trade which has set in, and which promises to continue for some years to come, will bring prosperity to the companies, and, in a measure, to the laboring classes engaged in the production of coal. It should, however, be borne in mind by those interested in the trade that the permanent prosperity and great development in the trade must necessarily come from low prices of fuel, which will stimulate every branch of manufacturing industry. There is every probability that the supply of labor at the mines during the coming year will be insufficient, and that wages will advance correspondingly. The demands for advance in wages have already commenced, and, in many cases, have been accorded; but the future will bring still further demands, and, unless some system of arbitration be adopted, we are likely to see, before the close of the year, strikes and stoppages which will be as disastrous to the companies as to the men engaged in them. We urge, therefore, in the interest of every industry using coal, as well as in the interest of the stockholders of coal companies, and of the laborers employed in the mines, that such measures be taken in time as will effectually prevent strikes and lockouts in the future. It is much easier to make an arrangement of this kind before the strike has been engaged in than while the men are out."

Bituminous Mines.

No similar system has been introduced generally throughout the bituminous region of the State. There is, however, in a few localities, standing agreements between the operators and their men. Corry & Co., of Braddock, Allegheny county, who employ about eighty men and boys, work upon a plan that fixes the wages for mining upon the price of coal. Sixty days' notice is required before basis of wages can be changed. "No strike for wages or other causes has occurred for ten years, except the time of the riots, when the men were driven out."

"Each man in the employment of the firm signs an agreement to the following effect: The price paid for mining is based on the selling price of coal 'on the wall' (Union Depot) at Pittsburgh. The scale runs down to five cents per bushel, and has the following provisions: When coal is five cents per bushel, mining is $2 00 per 100 bushels; when coal is five and one half cents per bushel, mining is $2 30 per 100 bushels; when coal is six cents per bushel, mining is $2 60 per 100 bushels, and so on.

"The agreement further stipulates that no coal shall be sold below the lowest point named in the scale without the consent of both operator and miner; also, that no change whatever in this scale shall be effected by either side without sixty days' notice. At the end of each month the average of the month's rates is found, and the miners are paid in strict accordance therewith, and on the basis given. The books are at all times open to the inspection of those of the men who desire to satisfy themselves by such an inspection."

The following article of agreement is required to be signed by the employés of the Waverly Coal and Coke Company, of Westmoreland county:

"CO-OPERATIVE ARTICLE OF AGREEMENT

"Entered into, this . . day of . . . . . , A. D. 18 . , by and between . . . . . , coal miner, party of the first part, and the Waverly Coal and Coke Company, party of the second part, to wit: In order to insure a more uniform system of work, and to avoid the losses and inconveniences arising from the practice of strikes and lock-outs, and to enable the said Waverly Coal and Coke Company to secure more permanent contracts, and thereby give more steady employment, it is hereby mutually agreed as follows, to wit:

"That in all cases of disagreement in reference to wages or any other grievance, we, each of the parties aforesaid, agree to give to the other sixty days' notice before striking, and will continue to work until the expiration of said sixty days' notice, at the price herein agreed upon, and I, ... coal miner, also agree that before demanding money due me by the said Waverly Coal and Coke Company, will put my room in good order, take my pit tools off their premises, and give them peaceable possession of any house I may occupy, owned by said Waverly Coal and Coke Company. I also agree to dig or mine coal for said Waverly Coal and Coke Company for one year from date, at the following rate, subject to the provisions hereinbefore mentioned, sixty days' notice, &c.: For one and one half cents per bushel of coal weighed and paid for at the rate of seventy-six lbs. per bushel, over $1\frac{1}{2}$-inch screen, when coal nets Waverly Coal and Coke Company three cents per bushel at their mines, after paying freight, which shall be the basis of price to start from; which basis cannot be changed by either party without giving sixty days' notice by the party desiring the change; and in determining the price that coal sells for, access is to be had to the company's books at monthly settlements, and the average price coal sells for at the mines, after paying freight, shall determine the price of mining. It is also agreed that the rate of advance or decline upon this basis is to be as follows: For every cent, or fraction thereof, that coal advances at mines per bushel, after freight is paid, the miner is to have fifty per cent.; and each to share any decline in this ratio to the basis started from; the miner receiving fifty per cent. of the advance and standing fifty per cent. of the decline; the Waverly Coal and Coke Company receiving fifty per cent. of the advance, and standing fifty per

cent. of the decline in price; and for the faithful performance of the above agreement, I, ... coal miner, agree to leave ten per cent. of all my wages stand in the hands of said Waverly Coal and Coke Company for one year, as a forfeit which, in case I violate this agreement by going on a strike without giving the said Waverly Coal and Coke Company the aforesaid sixty days' notice, I forfeit and relinquish all claims in law thereto; and, in that event, this article of agreement is to be a receipt in full for said ten per cent. standing in the hands of Waverly Coal and Coke Company.

The said Waverly Coal and Coke Company bind themselves, in like manner and amount, give the said . . . . . coal miner, sixty days' notice before reducing my wages from the price herein agreed upon, and for the faithful performance of the above article, we bind ourselves, our heirs, and assigns.

. . . . . [SEAL.]

Witness: . . . . . .

. . . . . [SEAL.]

Great complaint has existed among miners of bituminous coal concerning an alleged custom of receiving no pay for coal passing through the screens, and which is denominated nut coal. This nut coal finds a ready sale in the markets at fair prices, and, as the mining of the same seems to the miner to be a forced offering of gratuitous labor, naturally breeds discontent. So great has been the complaint that the miners have frequently sent representative committees, armed with prepared bills, to the Legislatures while in session, urging their enactment into law. Like many movements of a similar character, however, they aimed to accomplish too much, by demanding that which no reasonable body of men would concede. The laws they sought to enact contemplated prescribing the exact length, breadth, and width between the bars of all screens, and made it a penal offense for the operator to construct any other. The object sought to be obtained was the forced construction of screens that would obviate the possibility of making but very little, if any, nut coal. To this the operator justly objected, and the Legislatures sustained the objection, principally upon the broad ground that every operator should be allowed to prepare his coal for the market untrammeled, and in such form as he deemed would be of best advantage. That the miner should complain of the system is quite reasonable, when all the labor is considered and compared with other trades. They say the printer is paid so much for setting one description of type, and a different price for another, yet all is recognized and paid for. The puddler, heater, and roller are paid for making, heating, and rolling a given price for each different kind of iron, varying in one instance in quality and manner of working, and in the other in the sizes, still each is added to the other, and the whole is paid for. The brickmaker is paid less for common than other brick, but, as he receives pay for each, he, of course, receives pay for all. But in their case there seemed to be an exception. The coal mined is screened, and, though the greatest skill and caution be exercised, still some coal passes through the screen, and thus becomes

classified—the portion passing through receiving no recognition in the shape of wages to the miners. To this the operator would reply that wages were based upon lump, the leading classification of coal, upon the sale of which his trade is chiefly dependent, and for the mining of which a price is given that contemplates compensation for all. Had wages been based distributively upon all classes of coal, much confusion and discord would have been averted.

The miners have made several attempts at organization. Each attempt would for a season succeed, but in the course of time the association would die away. During the last year a new plan of organization has sprang into being. The miners along the rivers and lines of railroads centering in Pittsburgh select delegates whom they send to the city, there in common to deliberate upon such matters as may be brought before them. David Fitzgerald is president, and D. R. Jones, Esquire, is their secretary and executive official, to whom is entrusted the execution of all plans and orders, or, to use his own words, "the organization is something like the English Government. I receive instructions from the convention, and I execute them." With a rising market, which stimulated prices, and consequently wages, the miners, with a view to harmonize interests, and obviate future difficulties and strikes, through their association, considered and approved of a plan looking to arbitration, and, in pursuance thereof, they addressed the following to the president of the Coal Exchange.

GRANT STREET, PITTSBURGH, PA., *July 21, 1879.*

Gentlemen of the Coal Exchange:

We have been authorized by a committee duly appointed by the river and railroad miners, to ask whether you would meet us at a suitable time and place to exchange views upon the advisability and practicability of devising some plan by which all difficulties arising between our labor and your capital may be amicably settled.

If you should deem it prudent to meet us, you will designate the time and place, giving us sufficient space to notify the committee, some of whom are not in this county.

Respectfully submitted,

D. R. JONES, *Secretary.*

DAVID FITZGERALD, *President.*

Ten days after, the Exchange replied to the foregoing, as follows:

PITTSBURGH, *July 31, 1879.*

D. R. JONES, Esq., *Secretary, etc., Grant street, city:*

DEAR SIR: I am directed by the Coal Exchange to acknowledge your communication of the 21st. inst., and while appreciating the good intent and spirit of same, to say to you that the Coal Exchange has never, as an organization, attempted to legislate in the matter of the personal business of its individual members, as they recognize the engagements of employés at their respective works to be.

Very truly yours,

J. M. SCHOONMAKER, *President.*

This seemed to put an end to the preliminary steps taken by the miners, and called forth the publication of the following letter from Mr. Jones:

PITTSBURGH, PA., *August 1, 1879.*

To the Editors of the Commercial Gazette:

The action of the Pittsburgh Coal Exchange upon the introductory steps taken by the miners of western Pennsylvania, looking toward the future solution of difficulties between the vast amount of labor and capital employed in the coal industry, by conference, argument or arbitration, instead of by strikes, is strangely inconsistent with reason and good sense. A favorable consideration of our proposition would very likely have landed both parties on some solid basis by which the recurrence of the disastrous consequences of the strike of last spring might be avoided. I hardly need to state to the well-informed people of this city and county that the delay of nearly twenty million bushels of coal at Pittsburgh for three months has occasioned irreparable loss to both capitalists and men. Time has been lost, invested capital idle and expensive, and speculative capital intimidated and driven to other coal fields. With these facts staring them in the face, they refused to even consider the demands of reason and sound judgment by putting in the flimsy plea of no jurisdiction. The iron and steel manufacturers of Pittsburgh might have pleaded for the same, and I cannot weigh the grave consequences to the peace and prosperity of this city had they not permitted the Amalgamated Association to present and discuss their rights in mutual conference. For the time being their decision is final, and we may pass through severe experiences before such favorable occasion is again afforded. The committee will report and be disbanded, and a feeling of disappointment and disapproval will prevail among the miners.

They will discuss the letter of Colonel Schoonmaker, written by direction of the Coal Exchange, in the meetings, and will probably conclude that the coal operators are bent on taking advantage of their poverty and want, and that their only alternative is organization, mutual assistance, and strikes.

The interests of capital and labor are identical. Where one thrives, the other flourishes; where one languishes, the other starves. A large majority of the miners on the Monongahela river consider them so, and to impute communism to them is neither just, right, nor magnanimous. A coal digger knows from experience that one man can dig more coal than another, and he would be the first to rebel were there any attempt to make the pay of all equal and common. The Coal Exchange may take advantage of us when wife and children are crying for bread, but they must not forget that there are limits to oppression, and they will not complain if the men will exercise their rights to organize and strike when their capital and contracts are in the most critical condition. Strikes are always dangerous. They beget circumstances which awaken the prejudices and inflame the passions of men. They test the strain of human nature, and they should only be resorted to when reason has failed. That men have an inalienable

right to organize and strike can hardly be disputed. I presume the Coal Exchange is organized to protect the operators. The banking association is organized to protect the interests of bankers. Railroads associate to pool their freights, and to dispute or deny the same right to workingmen to do the same is hardly fair. The operators have their coal exchange; the miners have their order. Their interests are the same. They ought to reason and confer with one another, but by a strange combination of some mysterious motives, the coal exchange has refused to speak to us.

D. R. JONES, *Secretary.*

Whether the foregoing letter stimulated the coal operators to a consideration of the subject is not known. However, during the following month those operating the line of the railroads especially, agreed to the appointment of a committee, to meet a like committee from the miners. The two committees met in the city of Pittsburgh, on the 24th of September, 1879, composed of the following gentlemen:

Committee of operators: Railroad mines—C. H. Armstrong, William A. McIntosh, Alexander Patterson, S. McCrickart. River mines—I. N. Bunton, S. L. Wood, and George Lysle. At large—Joseph D. Weeks.

The miners' committee were, representative at large, D. R. Jones; Edward O'Donnell, Pool No. 1; Thomas Gray, Pool No. 2; Lewis Renner, Pool No. 3; John Fretwell, Pool No. 4; William Barker, Panhandle road; Ephraim Kent, A. V. R. R.; Ferguson Gates, Pennsylvania road; James Kirk, B. and O. road.

At this meeting a board of arbitration was substantially agreed upon, Mr. McIntosh, of the operators, being elected president, and D. R. Jones and J. D. Weeks, secretaries. A sub-committee was appointed to devise rules for the government of the board. The committee submitted at the following meeting a report embracing a series of rules to govern the board, which were agreed to, subject to the approval of miners and operators, at meetings to be held by them respectively. Both meetings approved of the rules which are herewith given:

Rules for the formation and government of a Board of Conciliation and Arbitration for the Coal Mines of Western Pennsylvania.

First. The title of this board, shall be "The Board of Conciliation and Arbitration for the Coal Mines of Western Pennsylvania."

Second. The object of said board shall be, first, to settle all questions of wages; second, to determine such other general matters affecting the interests of either party as may be submitted to it from time to time by operator or miner, and by conciliatory means, to use its influence to prevent disputes and put an end to any that may arise; local questions may be referred to the board by either the miner or operator for adjustment.

Third. The board shall consist of eighteen members; four from the railroad miners, four from the river miners, four from the railroad operators,

four from the river operators, and a miners' secretary, and an operators' secretary, at large.

Fourth. The operators and miners shall each select their own representatives in such a way as shall seem to them best: *Provided only*, That with the exception of the secretaries, the representatives so selected, shall be actively engaged in mining or in operating mines.

Fifth. The members of the board shall be chosen the second Tuesday in January, and shall hold office for one year and eligible for reëlection. The board so elected, shall meet for organization.

[NOTE.—It is understood, that the members of the board and officers elected at the adoption of these rules, shall serve until the time of the regular election in January.]

Sixth. If any representative die or resign, or cease to be qualified by terminating his active connection with coal mining, a successor shall be chosen within one month, in the same manner as is provided in the case of an annual election.

Seventh. Each representative shall be deemed fully authorized to act for the parties which have elected him.

Eighth. At the meeting of the board, to be held in January of each year, it shall elect a president and vice president; one from the operators, the other from the miners, who shall continue in office for one year, and be eligible for reëlection. The president, vice president, and secretaries shall be *ex-officio* members of *all* committees.

Ninth. At the same meeting of the board, a conference committee shall be chosen, to consist of one representative each of the river and railroad operators, and of the river and railroad miners, and the secretaries. The operators and miners shall each elect their own representatives on the committee.

Tenth. All questions shall, in the first instance, be referred to the conference committee, who shall investigate and endeavor to settle the matters so referred to it, but shall have no power to make an award, unless by consent of the parties. In the event of the committee being unable to settle any question, it shall, as early as possible, be referred to the board.

Eleventh. The president shall preside over all meetings of the board, and, in his absence, the vice president, and in the absence of both president and vice president, a chairman shall be elected by the meeting.

Twelfth. All votes shall be taken at the board by a show of hands, unless a ballot is called for by any member. The president and vice president shall be entitled to vote on all questions, but shall have no casting vote in case of a tie. If at any meeting of the board the operator and miner representatives are unequal, all shall have a right to discuss any questions that may arise, but only an equal number of each shall vote, the representatives of the same section as the absent member not being entitled to vote. The decision of the majority of the board shall be final and binding on both parties.

Thirteenth. In case of a tie vote in the board, it shall appoint an inde-

pendent referee, whose decision in the matter in question shall be final and binding; but said referee shall be the unanimous choice of the board, and his selection and decision shall not occupy more than five working days.

Fourteenth. Immediately upon the organization of the board, it shall proceed to fix a scale of prices to be paid for digging coal.

Fifteenth. All questions requiring investigation shall be submitted to the conference committee or to the board, as the case may be, in writing, and shall be supplemented by such verbal evidence or explanation as they may think needful.

Sixteenth. No subject shall be brought forward at any meeting of the conference committee, or of the board, unless notice thereof be given to the secretaries five clear days before the meeting at which it is to be considered.

Seventeenth. The conference committee shall meet for the transaction of business prior to the half-yearly meetings, and, in addition, as often as business requires. The place of meeting shall be arranged between the president and secretaries in default of any special direction.

Eighteenth. In case of any difference or dispute arising having reference to the river or railroad interest exclusively, it shall be the privilege of the interest involved to ask that the difference or dispute be settled by the representatives of the river or railroad mines, together with the secretaries.

Nineteenth. The board shall meet for the transaction of business twice a year, in January and July; but on a requisition to the president, signed by five members of the board, specifying the nature of the business to be transacted, and stating that it has been submitted to the conference committee and left undecided by them, he shall, within five days, convene a meeting of the board. The circular calling such meeting shall specify the nature of the business for consideration.

Twentieth. Pending the discussion and decision of any difference or dispute there shall be no lock-out on the part of the operators, or strike on the part of the miners.

Twenty-first. Neither operators nor miners shall interfere with any man on account of his being a union or non-union man.

Twenty-second. Any expenses incurred by this board shall be borne equally by both parties; the operators paying one half and the miners paying one half; and it shall be the duty of the conference committee to establish the most convenient arrangements for collecting what may be needed to meet such expenses.

Twenty-third. Parties may at any time join this board by filing with the two secretaries an agreement to be bound by these rules.

Twenty-fourth. If any miner representative or operator representative shall become incapable of serving on this board, by reason of negligence or crime, the party whom he represents shall have power to censure, suspend, or expel him by a two third vote of the party aggrieved.

Twenty-fifth. No alteration shall be made in these rules, except at the

half yearly meeting of the board, nor then, unless notice in writing of the proposed change be given to the secretaries at least one calendar month before such meeting.

The board having been organized and rules adopted for its government, the next subject was the consideration and adoption of a scale of prices. The "basis" upon which the scale should be made, became a question of animated dispute; the miners contending that the price for mining should be based upon the price paid for boiling (or puddling) iron, while the operators claimed it should be based upon the price of coal "on the wall." At a meeting held in the early part of November, it was agreed that the price paid for mining should be based upon the price paid for puddling, taking the latter's scale as a guide. Upon this basis the miners presented scale, as follows:

Boiling.	Digging per 100 bushels.
At $5 00 per ton,	$3 50
At 5 10 per ton,	3 60
At 5 20 per ton,	3 70
At 5 30 per ton,	3 80
At 5 40 per ton,	3 90
At 5 50 per ton,	4 00
At 5 65 per ton,	4 10
At 5 80 per ton,	4 20
At 5 95 per ton,	4 30
At 6 10 per ton,	4 40
At 6 25 per ton,	4 60
At 6 45 per ton,	4 80
At 6 65 per ton,	4 90
At 6 85 per ton,	5 00
At 7 05 per ton,	5 10
At 7 25 per ton,	5 20

This proposition was regarded by the operators as being entirely too high, and agreed that the prices guaranteed by the miners' scale was more than the business itself would admit of. A dispute having arisen as to the alleged and actual amount of profits derived from the business, an invitation was given by the operators, and accepted by the miners, to visit upon the following day the offices of operators, and from their books ascertain the condition and profits of the trade. Notwithstanding this examination, it failed to harmonize the efforts of the board, the great obstacle still in the way being the question as to what the basis should be. At a meeting held on the 27th of November, the following resolution was adopted:

Resolved, That in order to facilitate matters and lose no time, the board now proceed to devise two scales, one based upon the price of boiling iron, and one upon the price of coal in Pittsburgh, to be laid before the board, and to be discussed by both parties and adopted next Friday, at two P. M.

Subsequent meetings developed the presentation of two scales, one by the miners, (being a modification of the former,) based upon the selling

price of iron, and the other by the operators upon the selling price of coal; the miners still insisting that as the price of iron affected the price of coal, in its advance and decline, and as the scale of the puddlers went up and down with the price of iron, their scale could, with all propriety, be governed by the same principle. The operators, however, claimed that as coal was of itself a separate and distinct commodity, subject to various prices irrespective of iron, the scale should, if expected to be permanent, and of any avail, be based upon its marketable price. Meeting after meeting was held and arguments multiplied, but there seemed to be no prospect of agreeing, when the selection of an umpire was suggested and decided upon, Judge Collier, of Allegheny county common pleas court, being selected. This it was thought would terminate the meetings, and adjust all matters in dispute; but, unfortunately, the pressing judicial duties of the judge were of such a character as to force him to decline the position. This action brought the board again together, the question being the selection of an umpire. Many names were suggested, but none could be agreed upon. In conjunction with the efforts to agree upon a scale, the board, from their earliest meeting, had agreed upon the temporary price for mining, the price so agreed upon running only from the first to the close of each month. Failing to agree upon an umpire, the question arose in a meeting held December 4, as to the price to be paid for mining during the month, upon which they also failed to agree, and, as a result, adjourned *sine die.*

A number of mines worked at three cents per bushel, and others at three and a half cents per bushel, until December 18, when the Railroad Coal Exchange passed a resolution making the uniform price of mining three and a half cents per bushel.

The desire for the adoption of a scale, however, was still strong in the minds of the miners, and in order to ascertain fully the sentiments of all miners, Mr. Jones was instructed to issue the following order:

ORDER No. 3.

National Amalgamated Association of the Miners and Drivers of the United States.

HEAD-QUARTERS, 68 GRANT STREET, PITTSBURGH, PA.

To the Miners of the Pittsburgh Railroad Division:

I hereby lay before you my scale, commonly called the Jones scale, for your approval and adoption. It is based on boiling with the three cent minimum when puddling is $5 per ton, and which was adopted by the railroad convention of December 11, 1879. All you have to do is to say when you are ready to demand, and, if need be, suspend digging until it is signed. This scale, once signed, will do away with trouble for one year.

After the fullest and freest discussion, the president of the meeting will put the following question:

"Are you ready to demand and suspend work until your operator signs this scale?"

No. men ready, ...
No. men not ready, ...
No. of men in pit, ...

Certificate.

We, and each one of us, certify that the above record of votes is correct and truthful, from our pit.

. . . . . *President.*

. . . . . *Local Secretary.*

To the President: Call a meeting on or before December 31, 1879.
To the Secretary: Mail promptly, properly sealed.

D. R. Jones,
December 24, 1879. *General Secretary.*

The returns indicated that a majority were in favor of the adoption of a scale of prices. As a result, Secretary Jones, under instructions, presented to railroad coal exchange their scale, based upon the price paid for boiling iron, requesting its adoption on or before January 1, 1880. On January 6, the exchange, by resolutions, refused to adopt the miners' scale, and furthermore refused to recognize Mr. Jones as secretary of the miners' association. On the 12th, the miners quit work, with the declaration that they would not resume until the operators had signed the scale. The scale would have given the miners four and one quarter cents per bushel for mining, but on the 30th of January, 1880, iron manufacturers advanced the card rate of bar iron to four cents per pound, which gave the "boilers" $7 25 per ton, and in pursuance of miners' scale, would give them five and one quarter cents per bushel for mining. This virtually increased their demand one cent and one cent and three quarters per bushel more than they received when they inaugurated the strike. Upon consultation, the miners withdrew the first scale, and, in lieu thereof, presented a new one based on the card rate of iron, with iron at four cents per pound, mining to be $3 62½ cents per hundred bushels. This proposition the operators also refused to accept, and, as a result, the miners withdrew all scales, and demanded four cents per bushel. Thus all efforts to establish a sliding scale proved fruitless, the great difficulty being the basis upon which the scale should rest. In the opening of the strike, one firm, we understand, signed the miners' scale, but one only. As we write, the strike, after thirty days' duration, has about ended, the miners resuming work at the prices offered by the operators. One company, it is reported, have put their miners in on the operators' scale.

The inability to agree is to be regretted, but the efforts made may be the forerunner of future attempts, which, it is to be hoped, may result in the ratification of an agreement that will be satisfactory to all, and thus make the relations of miner and operator agreeable and permanent.

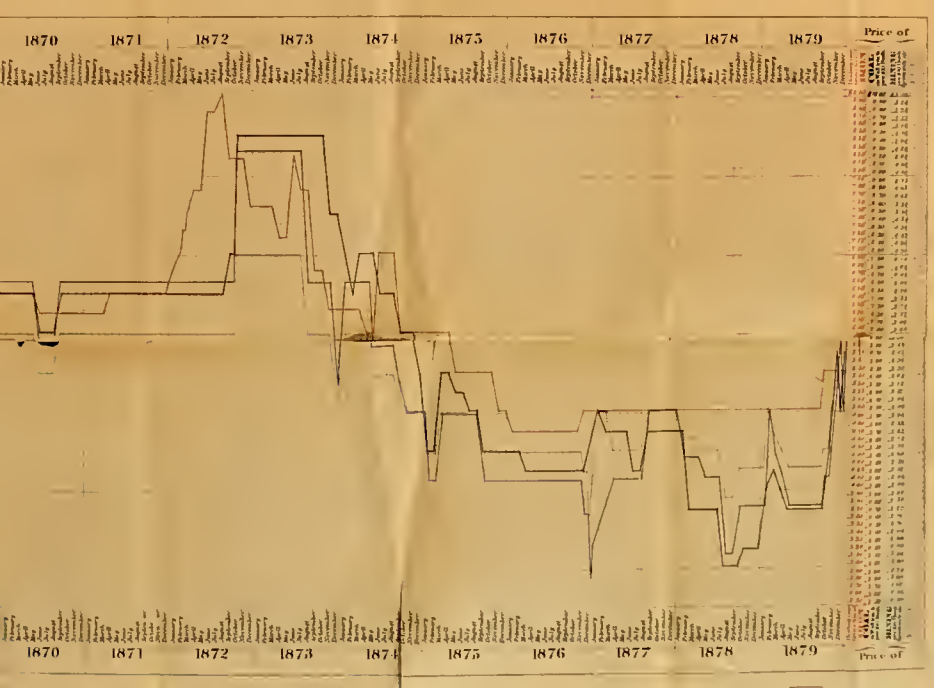
The accompanying interesting and explanatory chart was prepared by J. E. McCrickart, Esquire, manager of the Fort Pitt Coal Company.

NOTE.—The red line on chart indicates the price paid for boiling from January 1, 1870, to December 31, 1879, and—with but one inaccuracy that we discovered, too late, however, for correction—shows the correct prices and time which the same was paid. The error alluded to is where red line is extended, indicating $4 75 as the price from December, 1875, to November 1, 1876; whereas, the said price $4 75 ended May 31, advancing to $5 in June of the latter year.

Iron Workers.

Arbitration and conciliation, as a means of settling disputes, has long been in operation in this State between the iron manufacturers and their employés. The appointment of conference committees representing each side, and their subsequent coming together, and agreeing upon a "basis" fixing wages upon the selling price of iron, in the city of Pittsburgh dates back to January, 1865, while the earliest date given for such a proceeding in England relating to this trade was not until 1869. Possibly no city in the world, certainly not in this country, has the iron and steel industry grown with such rapidity during the last thirty years as the city of Pittsburgh, the receipts of metal, ore, scrap, and blooms for transformation into the various grades of merchantable iron and steel reaching, in 1879, almost seven hundred thousand tons. It was from this center, too, that the first impulse was given to the iron trade further west, Woodward, Norton, and others, nailers, heaters, etc., in 1847–48, going to Wheeling, and erecting mills and nail factories, and there laying the foundation for the great nail trade now monopolized by that city. It was Pittsburgh workmen, also, who, a little afterwards, built the iron works at Zanesville, Ohio, and also at the now thriving young city of Sharon, Mercer county.

The rapidity of the growth of this industry voluntary drew a large aggregation of workmen. Primarily, they were men from England, Wales, and Scotland; but as time wore away, men of all climes and classes commingled in the great army of iron workers. The first great strike that occurred while the iron business was comparatively yet in its infancy was in 1849, when the manufacturers attempted, and finally succeeded, in reducing puddling below six dollars per ton. This memorable strike commenced upon the 20th of December, 1849, and ended about the 1st of the following May, the puddlers resuming work at $4 50 per ton. While the manufacturers succeeded in affecting a reduction in the price of puddling, the result left the men greatly depressed, dissatisfied, and discontented, many scattering to new fields of operation throughout the West. The ten following years witnessed many petty strifes, as the men, at every available opportu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nity, would seek to redress some real or imaginary wrong, while the manufacturers, in turn, when prices tended downward, would retaliate in an effort to save fleeting profits through a reduction of wages. To such an extent did wages decline that during 1857, and up to 1860, puddling ranged from $3 50 to $4 per ton, the lower price being paid in cash, while the higher was in part or in whole paid in store goods.

Manufacturers made contracts with the fullest assurance that all prices paid for labor would remain intact, in which, mainly, they were not disappointed, although numerous local strikes would occur, involving many of the regulations in mills as well as that of wages, and thus incur losses upon both sides. During these years, however, it might truthfully be said, that upon the whole, the workmen, notwithstanding their occasional turbulence, were as completely subjugated to the will of their employers, as it was possible for men in this free and rapidly growing country to be.

In April, 1858, a few of the men connected with the puddling department of the mills assembled, and organized a trades union, under the name of the "United Sons of Vulcan." The object, as set forth in the constitution published years afterwards, was as follows:

Titles and Objects

Section 1. This association shall be known as . . . . . Forge, No. , U. S. of V. It shall be composed of good practical workmen, who shall be admitted to membership therein, according to the provisions of the constitution.

Section 2. The objects of this F., shall be the elevation of the position of its members, the maintenance of the best interests of the craft, the relief of the sick and distressed members, and all other things appertaining to the business in which the members under its jurisdiction may be involved.

The inactivity of business and consequent dearth of employment, caused the membership to keep the fact of organization a profound secret, for fear the wrath of employer would be invoked, and a mandate go forth requiring a withdrawal from the organization or immediate discharge from employment. So much were they impressed with the perils incident to an effort to promote its growth at that time, that it was finally concluded to suspend further operation, and await the developments of more favorable opportunities. That period seemed to indicate itself in 1860–61, when the members again assembled and imparted new life into the organization. Its growth for some time was but slow, as they realized that the object to be fully attained, required the joint coöperation of those only who became thoroughly imbued with its principles, and quietly, yet earnestly, labor to that end, hence all were not sought after to become members. The succeeding years witnessed a revival in the iron trade, and as it was stimulated to renewed energies and action, the organization began to show signs of vigorous life; rapidly growing in membership, until, at the opening of 1863, it assumed a position and influence which it immediately began to exert, culminating in a series of recognitions such as the puddlers, as a class, had

never aspired to or received before. By and through representative organization, they began to seek greater rewards for their labor, which, owing to the fluctuation of war times, kept them remarkably busy, for at times the demand would be greater than the manufacturer could allow, and, as a result, strikes of short duration would occasionally occur. Finally, a general conference of representative men from each side, employer and workman, suggested itself, through whom wages were to be fixed and difficulties avoided, while its action and conclusion would in common bind all. The fluctuations requiring repeated conferences began to develop the propriety as well as the necessity of agreeing upon some general plan which would obviate frequent meetings, and yet fix wages justly commensurate with the price of iron. With that end in view, committees of conference were appointed, and after repeated meetings, finally agreed upon the following scale of prices:

Memorandum of Agreement

Made this 13th day of February, 1865, between a committee of boilers and a committee from the iron manufactures appointed to fix a scale of prices to be paid for boiling pig iron, based on the manufacturers' card of prices, it being understood either party shall have the right and privilege to terminate this agreement by giving ninety days' notice to the other party, and that there shall be no deviation without such notice.

When the manufacturers' card of prices are at the rates named below, the price for boiling shall be at the prices opposite, per ton of 2,240 pounds.

Manufacturers.	Boilers.	Manufacturers.	Boilers.
8½ cents per pound, ...	$9 00	5½ and 5¼ cents per pound. . .	$6 00
8¼ cents per pound, ...	8 75	5 and 4¾ cents per pound, . .	5 75
8 cents per pound, ...	8 50	4½ and 4¼ cents per pound, . .	5 50
7¾ cents per pound, ...	8 25	4 and 3¾ cents per pound, . .	5 00
7½ and 7¼ cents per pound, . .	8 00	3½ and 3¼ cents per pound, . .	4 75
7 and 6¾ cents per pound, . . .	7 50	3 and 2¾ cents per pound, . .	4 50
6½ and 6¼ cents per pound, . . .	7 00	2½ cents per pound, ...	4 00
6 and 5¾ cents per pound, . .	6 50		

The adoption of this scale was hailed by all as the era of peace, but, as subsequent events showed, they were disappointed. Iron declined from seven and one half cents per pound in February to four cents in July, and, as a consequence, the price for puddling declined in the proportion stipulated by the scale. Becoming impressed with the belief that the basis of the scale was too low, the puddlers gave the required ninety days' notice, in the summer of the aforesaid year, to terminate the agreement, the price at that time being $5 75 per ton. At the expiration of said notice, the price of iron had advanced slightly, giving the puddlers $6 per ton; whereupon, they demanded and received $2 per ton of an advance, making the price $8 per ton. The latter figure prevailed as the price for puddling until near

the close of 1866, when the puddlers, under the belief that the price of iron justified their action, demaded an advance of $1 per ton, which was, with considerable reluctanee, eonceded by the manufacturers.

The concession, however, was not of long standing, for soon the manufacturers gave evidence of unwillingness to continue the prices, culminating in a notice of reduction to $7 per ton. In this notiee, all the manufacturers, with but very few exceptions, united, not only in Pittsburgh, but in all iron works in the adjaeent eountry. The puddlers refused to aecept the reduction, and, as a consequence, a lock-out was inaugurated, which extended from Deeember, 1866, to the middle of May, 1867, all the mills, with two or three exceptions, remaining idle during that time. This loek-out terminated in the manufacturers paying the old wages. During this protracted siege of idleness, much of the Pittsburgh trade had been drawn to other sections of the country, where wages were not so high, and with whom it was very difficult, if not impossible, for them to compete, and, as a result, the works did not assume the life and aetivity that had formerly eharaeterized the "smoky city."

Reeognizing the neeessity of the return of the trade, and the evident inability of the manufaeturers to long eontinue in paying the existing priees, the Sons of Vulean again renewed the consideration of a "sliding seale." A eireular was adopted and addressed to each iron firm in the eity, by the committee or offieials of the Puddlers' Association, suggesting a eonferenee with the manufaeturers, with the view of adopting, if possible, another scale regulating the wages paid. The circular was responded to by the manufaeturers affirmatively; the committees eame together, and after a number of meetings, agreed upon the following seale of prices:

Memorandum of Ayreement

Made this 23d day of July, 1867, between the committees of boilers and manufacturers, to wit: That $9 per ton shall be paid for boiling iron, until the 17th day of August, 1867. From that time until the 15th day of September, $8 shall be paid. After latter date the following seale shall be operative:

Iron.

5	cents, eard rates, boiling,			$8 00
4 3/4	"	"	"	7 75
4 1/2	"	"	"	7 50
4 1/4	"	"	"	7 25
4	"	"	"	7 00
3 3/4	"	"	"	6 75
3 1/2	"	"	"	6 50
3 1/4	"	"	"	6 25
3	"	"	"	6 00

Being 25 cents per ton reduction or advanee for eaeh change of one quarter of a eent per pound on eard rates.

Either party to this arrangement can terminate the same by giving thirty days' notice to the other party.

It is further understood that immediate steps shall be taken by both parties, following said notice, to meet and endeavor to arrange the difference and settle the difficulties which occasioned said notice.

For a period of seven years following the adoption of the foregoing scale, the relations of employer and employed were uninterrupted, the wages advancing and declining in proportion to the price of iron. It will be observed, however, that the scale did not extend upward above five cents per pound for iron, nor downward below three cents per pound. The gradual decline in iron from January, 1873, from five cents to two and five tenth cents per pound, December, 1874, with a gradual decline, also, in the demand, caused the manufacturers, in October of the latter year, to request a conference with the workmen, with a view of extending the scale and the wages correspondingly down to two and five tenth cents per pound, card rates of iron. The first conference was held November 7, 1874, when the manufacturers gave the required thirty days' notice to terminate the agreement, coupled with the proposition to effect "a reduction of $1 per ton on a three cent card and all below that figure, and at the same time providing for an extension of their card rates from three cents to two and a half cents. During the thirty days, and before the notice had expired, a number of meetings were held, at which the men proposed a reduction of fifty cents per ton on a three cent card, wages, however, to extend no lower, should the price list be reduced. This, however, the manufacturers refused, and on the 5th of December, 1874, held their last meeting, adjourning with the understanding that they agree to disagree." Then commenced the memorable strike which kept the many mills of Pittsburgh in an almost complete state of idleness, especially the puddling departments, during the entire winter. In March the manufacturers proposed to arbitrate, but the men at that late day refused. Matters continued without material change until the 15th of April, 1875, when, at a meeting of the manufacturers, the following resolutions were adopted:

WHEREAS, In December last, the iron manufacturers of Pittsburgh and vicinity made a demand upon their boilers for a reduction in price of boiling to $5 per ton on a three cent card, and $4 50 per ton on a two and a half cent card until such time as the price of manufactured iron should advance to over three cent card, when the old scale should be restored, which demand was rejected by the boilers, and a strike ensued which has continued to the present time:

And whereas, The reason given by the manufacturers for making such demand, was their inability to pay anything more on the price of iron that was current at that time, without entailed loss upon themselves:

And whereas, There has been no visible improvement in the price of manufactured iron up to the present time, nor visible improvement of any

kind in the situation, and the representations made to our boilers in our conferences with them just previous to the strike, and which we believe to be *strictly true*, apply with equal force to the present time and situation, yet some of the firms which have heretofore acted with us in our efforts to reduce the price of boiling to a fair and equitable figure on the present price of iron, for reasons known only to themselves, have withdrawn their coöperation, and have started their mills at $5 50 per ton; therefore,

Be it resolved, That in view of their action and the fact that western mills are running and taking the trade which largely belongs to Pittsburgh, we deem it inexpedient to longer continue the suspension of our mills, and that we all, or as many of us as desire, resume work at $5 50 per ton.

(Signed,) J. C. Lewis, *President.*

This action upon the part of the manufacturers, virtually terminated the conflict, but divided the action of each, for heretofore a general committee had arranged and signed a scale binding upon all, whereas, now, each firm was free to sign or otherwise as they in their judgment thought proper. The puddlers, however, clung to the scale, and would not resume unless the signature of the firms were attached, a duty which the various local committees attended to promptly, and which in time was acquiesced in by all. The scale then stood as follows:

Pittsburgh scale.

When iron is $5\frac{5}{10}$ cents a pound, boiling is $8 50 a ton.
When iron is $5\frac{4}{10}$ cents a pound, boiling is 8 40 a ton.
When iron is $5\frac{3}{10}$ cents a pound, boiling is 8 30 a ton.
When iron is $5\frac{2}{10}$ cents a pound, boiling is 8 20 a ton.
When iron is $5\frac{1}{10}$ cents a pound, boiling is 8 10 a ton.
When iron is 5 cents a pound, boiling is 8 00 a ton.
When iron is $4\frac{9}{10}$ cents a pound, boiling is 7 90 a ton.
When iron is $4\frac{8}{10}$ cents a pound, boiling is 7 80 a ton.
When iron is $4\frac{7}{10}$ cents a pound, boiling is 7 70 a ton.
When iron is $4\frac{6}{10}$ cents a pound, boiling is 7 60 a ton.
When iron is $4\frac{5}{10}$ cents a pound, boiling is 7 50 a ton.
When iron is $4\frac{4}{10}$ cents a pound, boiling is 7 40 a ton.
When iron is $4\frac{3}{10}$ cents a pound, boiling is 7 30 a ton.
When iron is $4\frac{2}{10}$ cents a pound, boiling is 7 20 a ton.
When iron is $4\frac{1}{10}$ cents a pound, boiling is 7 10 a ton.
When iron is 4 cents a pound, boiling is 7 00 a ton.
When iron is $3\frac{9}{10}$ cents a pound, boiling is 6 90 a ton.
When iron is $3\frac{8}{10}$ cents a pound, boiling is 6 80 a ton.
When iron is $3\frac{7}{10}$ cents a pound, boiling is 6 70 a ton.
When iron is $3\frac{6}{10}$ cents a pound, boiling is 6 60 a ton.
When iron is $3\frac{5}{10}$ cents a pound, boiling is 6 50 a ton.
When iron is $3\frac{4}{10}$ cents a pound, boiling is 6 40 a ton.
When iron is $3\frac{3}{10}$ cents a pound, boiling is 6 30 a ton.
When iron is $3\frac{2}{10}$ cents a pound, boiling is 6 20 a ton.
When iron is $3\frac{1}{10}$ cents a pound, boiling is 6 10 a ton.
When iron is 3 cents a pound, boiling is 6 00 a ton.
When iron is $2\frac{9}{10}$ cents a pound, boiling is 5 90 a ton.
When iron is $2\frac{8}{10}$ cents a pound, boiling is 5 80 a ton.
When iron is $2\frac{7}{10}$ cents a pound, boiling is 5 70 a ton.
When iron is $2\frac{6}{10}$ cents a pound boiling is 5 60 a ton.
When iron is $2\frac{5}{10}$ cents a pound, boiling is 5 50 a ton.

Being ten cents advance or reduction for each change of $2 per ton on card. Either party to this agreement, can terminate the same by giving thirty days notice to the other party.

It is further understood, that immediate steps shall be taken by both parties, following said notice, to meet and arrange the difference and settle the difficulty which occasioned said notice.

The continued depression in business and consequent decline in the prices of iron, kept matters in a very discouraging condition, with no immediate hope of relief; the manufacturers, in the meantime, contending that they were doing a losing business, and consequently justly unable to continue paying the wages given. Towards the close of October, 1875, the scale, by the action of the manufacturers, was set aside, and committees again were called together to consult over a reduction. The price list of iron had fallen $2\frac{5}{10}$ cents per pound, while large quantities was being sold at a much less figure, in fact everything became confused, and all, apparently, sold at prices best suited to themselves. The subject for consideration before the committee, was not particularly a scale of prices, but the adoption of a rate that would at least enable all to tide over the difficulties that oppressed them. The committees continued to hold their meetings at intervals during the month of November. The manufacturers insisting that puddling should be reduced to $4 50 per ton. About December 11, 1875, an agreement was entered into, which, in effect, was a compromise, providing that wages, up to December 13, would be at the rate of $5 per ton; from the latter date until February 14, 1876, the wages were to be $4 75 per ton. After the expiration of the above date, the committees again convened, but failed to effect any definite arrangements, and finally separated with the understanding that each and every firm was at liberty to act as they thought best. The puddlers, however, resolved that there should be no further reduction, and blended their efforts to that end, so that $4 75 continued to be the price.

Thus matters continued until the early part of the following May, when the committees again came together to agree, if possible, upon a scale of prices. No agreement could be arrived at, and, in order to bring matters to a climax, the puddlers presented the following scale, being a reduction of fifty cents per ton on two and a half cents card, accompanied with the notification that, unless agreed to by the manufacturers, they would cease working after the 31st of May. The scale presented was to be operative, without change, for a period of one year.

Pittsburgh Price for Boiling.

Memorandum of agreement, made this . day of . . . . . , 18—, between the firm of . . . and the boilers in their employ:

When card rates of bar iron are $2\frac{5}{10}$ cents per pound, boiling shall be $5 per ton of 2,240 pounds.

When card rates of bar iron are $2\frac{6}{10}$ cents per pound, boiling shall be $5 10 per ton of 2,240 pounds.

When card rates of bar iron are $2\frac{7}{10}$ cents per pound, boiling shall be $5 20 per ton of 2,240 pounds.

When card rates of bar iron are $2\frac{8}{10}$ cents per pound, boiling shall be $5 30 per ton of 2,240 pounds.

When card rates of bar iron are $2\frac{9}{10}$ cents per pound, boiling shall be $5 40 per ton of 2,240 pounds.

When card rates of bar iron are 3 cents per pound, boiling shall be $5 50 per ton of 2,240 pounds.

When card rates of bar iron are $3\frac{1}{10}$ cents per pound, boiling shall be $5 65 per ton of 2,240 pounds.

When card rates of bar iron are $3\frac{2}{10}$ cents per pound, boiling shall be $5 80 per ton of 2,240 pounds.

When card rates of bar iron are $3\frac{3}{10}$ cents per pound, boiling shall be $5 95 per ton of 2,240 pounds.

When card rates of bar iron are $3\frac{4}{10}$ cents per pound, boiling shall be $6 10 per ton of 2,240 pounds.

When card rates of bar iron are $3\frac{5}{10}$ cents per pound, boiling shall be $6 25 per ton of 2,240 pounds.

When card rates of bar iron are $3\frac{6}{10}$ cents per pound, boiling shall be $6 45 per ton of 2,240 pounds.

When card rates of bar iron are $3\frac{7}{10}$ cents per pound, boiling shall be $6 65 per ton of 2,240 pounds.

When card rates of bar iron are $3\frac{8}{10}$ cents per pound, boiling shall be $6 85 per ton of 2,240 pounds.

When card rates of bar iron are $3\frac{9}{10}$ cents per pound, boiling shall be $7 05 per ton of 2,240 pounds.

When card rates of bar iron are 4 cents per pound, boiling shall be $7 25 per ton of 2,240 pounds.

The above agreement and scale of prices shall continue until the 1st day of June, 1880.

The manufacturers refused, and, as a result, the mills stopped. The suspension did not last long, however, as, at the close of two weeks, a number of mills broke loose, the owners signing the scale. Their action was speedily followed by others, and within a few days all had signed, and thus, for one year at least, further strifes over the wages question was dispelled. Upon the recurring month of June, 1877, the same proceedings were enacted; also, in June, 1878, and again in 1879, the scale being operative until June 1, 1880.

Following in the wake of the "United Sons of Vulcan," in after years, came other organizations of iron workers, such as heaters, rollers, and roll-hands. Each class had separate associations, but all were iron-workers, engaged at the same works, and for the same respective firms. After the long puddlers' strike of 1874, each organization began to agitate the propriety of amalgamating into one grand general organization. The agitation at last ended in each organization, at their annual conventions of 1875, appointing committees, who were authorized to meet during the year, to devise and prepare plans looking to the federation of all the associations, and to report to the next annual conventions, which were all arranged to meet the following year at Pittsburgh. The committees appointed attended to the duties assigned them, and, at the given time, submitted their report, not only recommending, but accompanied it with laws complete for

the government of the general body. The report was accepted and adopted, and, as a result, the several associations were merged into one, under the distinctive title of the "Amalgamated Association of Iron, Steel, and Tin Worker of the United States, with Joseph, Bishop, Esq., of Pittsburgh, as president. The interests of all being blended into one, through the instrumentality of amalgamation, every measure devised looked to the well-being of all; but no subject engaged their attention so much as the necessity of avoiding frequent difficulties, through the medium of scales of prices, based upon the selling price of iron. To accomplish this end, much time and labor was devoted, the late result of which we insert, as follows:

Memorandum of Agreement

Made this 17th day of October, 1879, between a committee of bar and nail-mill rollers and heaters, and a committee from the iron manufacturers, appointed to fix a scale of prices to be paid for rolling and heating iron, based on the manufacturers' card of prices, it being understood that either party shall have the right and privilege of terminating this agreement by giving sixty days' notice to the other party; but that there shall be no deviation without such notice and a conference.

It is understood that in mills running on specialties, separate contracts may be made between the manufacturers, rollers, and heaters, without interfering with this agreement.

When the manufacturers' card of prices are at the rates named below, the prices of rolling and heating shall be the price opposite per ton, (2,240 pounds.)

Card rates.	*Rolling and heating.*	*Card rates.*	*Rolling and heating.*
$2\frac{5}{10}$ cents,	65 cents.	$3\frac{3}{10}$ cents,	78 cents.
$2\frac{6}{10}$ cents,	66½ cents.	$3\frac{4}{10}$ cents,	80 cents.
$2\frac{7}{10}$ cents,	68 cents.	$3\frac{5}{10}$ cents,	82 cents.
$2\frac{8}{10}$ cents,	69½ cents.	$3\frac{6}{10}$ cents,	85 cents.
$2\frac{9}{10}$ cents,	71 cents.	$3\frac{7}{10}$ cents,	88 cents.
3 cents,	72½ cents.	$3\frac{8}{10}$ cents,	91 cents.
$3\frac{1}{10}$ cents,	74 cents.	$3\frac{9}{10}$ cents,	94 cents.
$3\frac{2}{10}$ cents,	76 cents.	4 cents,	97 cents.

Nail-plate rolling, 10 cents per ton less than bar rolling.

Pittsburgh Prices for Rolling on Guide, Hoop, Cotton Tie, and Ten-inch Mills.

Memorandum of agreement between a committee of guide rollers and a committee from the iron manufacturers, appointed to fix a scale of prices to be paid for rolling iron, based on the manufacturers' card of prices, it being understood that either party shall have the right and privilege of terminating this agreement by giving sixty days' notice to the other party; but there shall be no deviation without such notice and a conference.

It is understood that in mills running on specialties, separate contracts

may be made between the manufacturers, rollers, and heaters, without interfering with this agreement.

It is agreed that the base price at a $4\frac{5}{10}$ manufacturers' card, shall be the straight $4 rate for guide rolling, with two (2) per cent. additional for each one tenth ($\frac{1}{10}$) advance of manufacturers' card, and two (2) per cent. decline for each deduction of one tenth ($\frac{1}{10}$) from manufacturers' card.

Guide Mill.

$\frac{3}{16}$ rounds and squares,	$15 00
$\frac{7}{32}$ rounds and squares,	12 00
$\frac{1}{4}$ rounds and squares,	9 00
$\frac{5}{16}$ rounds and squares, ($1 25 for piles extra,)	6 50
$\frac{3}{8}$ and $\frac{7}{16}$ rounds and squares,	5 00
$\frac{1}{2}$ and $\frac{9}{16}$ rounds and squares,	4 50
$\frac{5}{8}$ and upwards,	4 00
$\frac{3}{8}$ and $\frac{7}{16}$ oval,	8 00
$\frac{1}{2}$ and $\frac{9}{16}$ oval,	6 00
$\frac{5}{8}$ oval,	5 00
$\frac{3}{4}$ oval and upwards,	4 00
$\frac{5}{16}$ half rounds,	15 00
$\frac{3}{8}$ half ovals and half rounds,	14 00
$\frac{1}{2}$ half ovals,	8 00
$\frac{5}{8}$ half ovals and half rounds,	6 00
$\frac{3}{4}$ half ovals and half rounds,	5 00
$\frac{1}{8}$ half ovals and upwards,	4 00
$\frac{1}{2}$ to $\frac{5}{8}\times\frac{3}{16}$ to $\frac{3}{8}$ and $\frac{9}{16}\times\frac{1}{4}$,	6 00
$\frac{11}{16}\times\frac{5}{16}$,	5 50
$\frac{3}{4}\times\frac{5}{8}$ $\frac{3}{16}$,	5 00
$\frac{7}{8}\times\frac{3}{16}$ to $\frac{3}{4}$,	4 50
1 and upwards,	4 00
$\frac{3}{8}\times\frac{1}{4}$ to $\frac{3}{16}$ and $\frac{7}{16}\times\frac{1}{4}$,	8 00
$\frac{5}{16}\times\frac{1}{4}$,	9 00

Hoop and Cotton Tie Mills.

$1\frac{3}{4}$ and upwards by $\frac{1}{8}$,	$4 75
$1\frac{1}{2}$ and $1\frac{3}{8}$ by $\frac{1}{8}$,	5 00
$1\frac{1}{4}$ and $1\frac{1}{8}$ by $\frac{1}{8}$,	6 00
1 by $\frac{1}{8}$,	8 00
$\frac{7}{8}$ by $\frac{1}{8}$,	9 00
$\frac{3}{4}$ by $\frac{1}{8}$,	12 00
$\frac{5}{8}$ by $\frac{1}{8}$,	15 00
$\frac{9}{16}$ hoop lighter than 20 gauge,	17 00
$\frac{1}{2}$ than $\frac{1}{8}$,	20 00
Clips,	5 00
Slats,	6 00
Finger,	5 00

Ten Inch-Mill.

$\frac{1}{2}$ and $\frac{9}{16}$ rounds and squares,	$4 50
$\frac{5}{8}$ rounds, squares, and upwards,	4 00
$\frac{5}{8}$ ovals,	5 00
$\frac{3}{4}$ ovals and upwards,	4 00
$\frac{3}{4}\times\frac{5}{8}$ to $\frac{3}{16}$,	5 00
$\frac{7}{8}\times\frac{3}{4}$ to $\frac{3}{16}$,	4 50
1 and upwards,	4 00
$1\frac{3}{4}$ and upwards, hoop by $\frac{1}{8}$,	4 00
Bands,	6 00
Billets,	4 00

Heaters receive one fourth.

Fifty cents per ton extra for piles, 2,240 pounds per ton. The above scale shall not go below two and one half ($2\frac{1}{2}$) cents.

Fifty cents per ton extra for cut hoops, all sizes.

The price for rolling cotton tie shall be straight four dollars ($4) per ton, when bar iron card rates are three cents per pound, with no percentage off.

Any smaller sizes not enumerated in the ten-inch scale, are paid the same as guide mill prices.

The following table of prices of iron compared with the scale will show the corresponding change in price of labor:

Changes in the Standard Price Lists of Western Iron and Nail Association from 1864 to 1880.

	Iron.	Nails.		Iron.	Nails.
	Cts.			*Cts.*	
August 23, 1864,	$8\frac{1}{2}$	$9 12½	February 1, 1872,	4	$4 75
December 7, 1864,	$7\frac{1}{2}$	8 12½	February 15, 1872,	$4\frac{3}{10}$	
December 27, 1864,	$7\frac{1}{2}$	8 12½	February 29, 1872,	$4\frac{5}{10}$	5 00
February 21, 1865,	$7\frac{1}{2}$	7 62½	April 4, 1872,	$4\frac{8}{10}$	5 50
March 10, 1865,	$5\frac{1}{2}$	6 62½	July 11, 1872,	. . .	5 75
May 18, 1865,	$4\frac{3}{4}$	5 25	July 18, 1872,	5	5 75
July 17, 1865,	4		September 2, 1872,	$5\frac{2}{10}$	6 00
August 30, 1865,	$4\frac{5}{8}$	5 75	December 4, 1872,	$4\frac{6}{10}$	5 50
September 19, 1865,	$5\frac{1}{2}$	6 75	February 19, 1873,	$4\frac{6}{10}$	5 00
September 10, 1866,	5	7 00	April 9, 1873,	$4\frac{2}{10}$	5 25
November 6, 1866,	5	7 50	June 13, 1873,	$3\frac{8}{10}$	4 75
February 7, 1867,	5	6 75	September 17, 1873,	. . .	4 50
March 18, 1867,	5	6 75	October 21, 1873,	$3\frac{3}{10}$	4 50
August 13, 1867,	$4\frac{1}{2}$	6 00	February 16, 1874,	$3\frac{3}{10}$	4 12½
October 7, 1867,	$4\frac{1}{4}$	5 50	March 26, 1874,	3	4 12½
December 2, 1867,	4	5 50	August 26, 1874,	3	4 12½
January 13, 1868,	$3\frac{3}{4}$	5 25	December 15, 1874,	$2\frac{5}{10}$	3 35
March 2, 1868,	$3\frac{1}{2}$	4 75	July 15, 1875,	$2\frac{5}{10}$	3 25
December 26, 1868,	$3\frac{3}{4}$	5 00	March 26, 1876,	$2\frac{5}{10}$	
September 22, 1869,	$3\frac{3}{4}$	4 50		$2\frac{2}{10}$	
February 1, 1870,	$3\frac{1}{2}$	4 50	April 6, 1876,	$2\frac{5}{10}$	2 85
August 1, 1870,	$3\frac{1}{4}$	4 25	May 5, 1876,	$2\frac{1}{10}$	2 75
February 8, 1871,	$3\frac{1}{4}$	4 00	March 15, 1877,	2	2 75
April 5, 1871,	$3\frac{1}{2}$	4 50	April 18, 1877,	2	
July 8, 1871,	. . .	4 00	August 16, 1879,	$2\frac{3}{10}$	2 35
October 12, 1871,	. . .	4 25	September 1, 1879,	$2\frac{5}{10}$	2 60
November 8, 1871,	$3\frac{1}{2}$	4 25	September 29, 1879,	3	3 40
January 1, 1872,	$3\frac{8}{10}$	4 50	January 5, 1880,	$3\frac{5}{10}$	4 25

Prices given are f. o. b. cars or boats at Pittsburgh.

Pennsylvania as shown, we believe, stands at the head and front of all the States, in the efforts of conciliation between capital and labor. These efforts bear significance from the fact that they were purely voluntary on the part of those interested. Exceptions may be taken possibly to some of the results, founded upon the theory that they have not embraced within their scope all of the elements of depression, as well as activity in the business and trade represented; but the coming together of employer and employé, master and workman, who are engaged and identified with the one interest, is of itself a significant omen, which augurs much good, and of necessity must result in advancing the common welfare of all. As the employer observes that his workmen are daily growing in intelligence pertaining to matters of State, of trade, and of business generally, and from that stand-point able to faithfully exhibit his claims as a man, a workman, citizen, and good member of society, he will be forced to concede them recognition, and eventually conclude that his workmen are, possibly, equal partners of that great firm called society, in which are banked the savings of mankind. From these conciliatory meetings the workman, too, learns that to make his claims good he must lay aside all lawlessness, all manner of infringement upon the rights of others, everything tending to agrarianism resting it solely upon the condition of trade, and the ability of his employer to accede to the demand made. To do this requires thought, which he must give to matters in dispute, and as thought is the prime mover of all

conduct, it is necessary that he think wisely in order that his consequent action will command the commendation of all. That we are drifting toward the "consummation of such an end" is inevitable, for as one generation succeeds another, do we grow in thought and consequent intelligence, and as the one million dollars, wisely required by our Constitution to be annually appropriated for educational purposes, dots our hillsides and valleys with public school-houses, so are the minds of all improving, and learning the lessons that teach the relative rights and duties of all.

The following is from Hughes & Paterson's Iron Works, of Philadelphia, and is a schedule of wages fixed and posted by them in September, 1878. So far as we know, the prices here given were the prices paid rolling-mill hands in general throughout that city.

Large Mill.

Wages for Rolling Bars, Bands, Skelp, and Angle Iron, when running two furnaces on the mill.

Heater,	per ton, (2240 pounds,)	55	cents.
Helper,	"	27½	"
Roller,	"	31	"
Rougher,	"	18	"
Catcher,	"	14½	"
Saw boy,	"	7	"
Screw boy,	"	7	"
Roller boy,	"	7	"
Straightener,	"	14½	"
Hook-up,	"	8	"
Buggyman,	"	14½	"
Stocker,	"	14½	"

Small Mill.

Ordinary Sizes.

Band iron,	2½×No. 13,	wider and thicker.
"	2¼×No. 12,	"
"	2 ×No. 12.	"
"	1¾×No. 10,	"
"	1½×No. 8,	"
"	1⅝×No. 9,	"

Bars 1×¼, and all wider and thicker sizes,
Scrolls, ⅛ and ¾×⅜ and thicker,
Rounds and squares, ½ inch and larger,
Half-rounds, ⅛ inch and larger,
2½ inch skelp iron,
Ovals, ⅛ inch and larger,
Half-ovals, 1¼ inch and larger,
Horse-shoe iron, all sizes.

Heater,	per ton,	55	cents.
Helper,	"	27½	"
Roller,	"	60	"
Rougher,	"	32	"
Catcher,	"	20	"
Hook-up,	"	12	"
Stick-in,	"	13	"
Straightener,	"	12	"
Stocker,	"	29	"

Extra Sizes.

First Class.

Band iron, ... $2\frac{1}{2}$ ×No 14
$2\frac{1}{4}$ ×Nos. 13 and 14,
2 ×Nos. 13 and 14,
$1\frac{3}{4}$ ×Nos. 11 and 12,
$1\frac{5}{8}$ ×No. 10 to 12,
$1\frac{9}{16}$×No. 11,
$1\frac{1}{2}$ ×No. 9 to 12,
$1\frac{3}{8}$ ×No. 7 to 12,
$1\frac{5}{16}$×No. 11,
$1\frac{1}{4}$ ×No. 7 to 10,
$1\frac{1}{8}$ ×No. 7 to 10,
2 inch skelp iron,

Scroll iron, ... 1 ×$\frac{3}{16}$,
$\frac{1}{8}$ ×$\frac{1}{4}$ and $\frac{5}{16}$,
$1\frac{3}{16}$×$\frac{1}{4}$ and $\frac{5}{16}$,
$\frac{3}{4}$ ×$\frac{1}{4}$ and $\frac{5}{16}$,
$1\frac{1}{16}$×$\frac{1}{2}$ and $\frac{7}{16}$,
$\frac{5}{8}$ ×$\frac{1}{2}$ and $\frac{7}{16}$,

Rounds and squares, ... $\frac{7}{16}$, $\frac{3}{8}$, and $\frac{11}{32}$ inch,
Half rounds, ... $\frac{3}{4}$ inch,
Oval, ... $\frac{3}{4}$ and $\frac{5}{8}$ inch,
Half oval, ... 1 inch,

Heater, ...	per ton,	63 cents.
Helper, ...	"	$31\frac{1}{2}$ "
Roller, ...	"	$68\frac{1}{2}$ "
Rougher, ...	"	37 "
Catcher, ...	"	$22\frac{1}{2}$ "
Stick-in, ...	"	14 "
Hook-up, ...	"	13 "
Straightener, ...	"	13 "
Stocker, ...	"	$32\frac{1}{2}$ "

Second Class.

Band iron, ... $2\frac{1}{4}$×Nos. 15 and 16,
2 ×Nos. 15 and 16,
$1\frac{3}{4}$×No. 13 to 15,
$1\frac{5}{8}$×Nos. 13 and 14,
1 ×No. 8 to 10,

Scroll iron, ... $\frac{1}{8}$×$\frac{3}{16}$,
$\frac{3}{4}$×$\frac{3}{16}$,
$1\frac{1}{16}$×$\frac{1}{4}$ to $\frac{3}{8}$,
$\frac{5}{8}$×$\frac{1}{4}$ to $\frac{3}{8}$,
$\frac{9}{16}$×$\frac{1}{4}$ to $\frac{7}{16}$,
$1\frac{7}{32}$×$\frac{5}{16}$ to $\frac{7}{16}$,
$\frac{1}{2}$×$\frac{5}{16}$ to $\frac{3}{8}$,
$\frac{7}{16}$×$\frac{5}{16}$ to $\frac{3}{8}$,

Squares, ... $\frac{5}{16}$ inch,
Half rounds, ... $\frac{5}{8}$ and $1\frac{7}{16}$ inch,
Oval, ... $\frac{9}{16}$×$\frac{5}{16}$ and $\frac{3}{8}$,
$\frac{1}{2}$×$\frac{5}{16}$ and $\frac{3}{8}$,
Half oval, ... $\frac{1}{8}$×$\frac{3}{16}$ to $\frac{3}{8}$,
$\frac{3}{4}$×$\frac{3}{16}$ to $\frac{5}{16}$,

Heater, ...	per ton,	73 cents.
Helper, ...	"	$36\frac{1}{2}$ "
Roller, ...	"	79 "
Rougher, ...	"	44 "

Catcher,	per ton	27 cents.
Stick-in,	"	17 "
Hook-up,	"	14½ "
Straightener,	"	14½ "
Stocker,	"	38 "

Third Class.

Band iron,	1¾×No. 16 to 18,
	1⅝×No. 15 to 18,
	1½×No. 13 to 18,
	1⅜×Nos. 13 and 14,
	1¼×No. 11 to 15,
	1⅛×No. 11 to 15,
Scroll iron,	1 ×Nos. 11 and 12,
	⅞×No. 8 to 10,
	1 7/32×¼,
	½×¼,
Rounds,	5/16 and 9/32 inch,
Half rounds,	½ and 9/16 inch,
Half oval,	¾×Nos. 8 and 10,
	⅝×3/16 and ¼,
	9/16×3/16,

Heater,	per ton,	80 cents.
Helper,	"	40 "
Roller,	"	87 "
Rougher,	"	47 "
Catcher,	"	29 "
Stick-in,	"	18 "
Hook-up,	"	17 "
Straightener,	"	17 "
Stocker,	"	41½ "

Fourth Class.

Scroll iron,	1×Nos. 13 and 14,
	⅞×No. 11 to 14,
	¾×No. 8 to 15,
	⅝×No. 7 to 14,
	⅜×3/16,
	29/64×7/32
	½×No. 7 to 12,
Rounds and squares,	¼ inch,
Half rounds,	7/16, ⅜, and 5/16 inch,
Oval,	9/16×¼ inch,
	½×¼ inch,
Half oval,	⅝×No. 8 to 12,
	9/16×No. 8 to 12,
	½×No. 7 to 12,

Tie bands, for bundling iron,

Heater,	per ton,	$1 10
Helper,	"	55
Roller,	"	1 20½
Rougher,	"	65
Catcher,	"	39½
Stick-in,	"	25
Hook-up,	"	23½
Straightener,	"	23½
Stocker,	"	57

PUDDLE-MILL.

First roller,	per day,	$1 54
Second roller,	"	1 30
Catcher,	"	1 20
Drag-out,	"	1 20
Squeezerman,	"	1 17
Hook-up,	"	54
Pig iron stocker,	per ton,	10
Laborers,	per day,	1 10

Price for Puddling.

Puddler, $3 60 per ton, less one third to helper.
Helper gets $1 20 per ton off puddler.
Busheling scrap iron, $2 05 per ton, less one third to helper.

During the closing months of the year prices advanced, which, up to February 9, 1880, amounted to .7316 per cent., over list as given above.

The price for puddling advanced to $6 25 per ton. Helper, one third of puddler's wages, and fifteen cents per ton from office.

To the question, "give your opinion of, or experience with, arbitration as a means of settling disputes with employés," the following responses, among others, were received:

No. 18, Columbia county, says: We think employer and employés should settle disputes themselves.

No. 24, Columbia county, says: I believe arbitration the best way to settle disputes.

No. 98, Luzerne county, says: I am in favor of arbitration.

No. —, Luzerne county, says: I think arbitration a very good plan to settle disputed questions.

No. 126, Northumberland county, says: Think that arbitration would be a good way to settle disputes, if it could be done by employer and employé, without the interference of outsiders.

No. 157, Schuylkill county, says: In a general strike of a number of collieries, I prefer arbitration as a means of settling.

No. 11, Columbia county. Arbitration can be used to advantage in some cases, but I consider it inferior to the plan of a sliding scale of wages, on a fixed basis, agreeing with a certain price of coal, by which labor participates in the advance and decline, without any chance for dispute.

No. 41, Lackawanna county. Arbitration is a failure, better face the men in a body.

No. 40, Lackawanna county. Our opinion is, that for a general strike, arbitration would work; but for a local dispute, if arbitrators would not decide in favor of the miner, it would be labor in vain; such is our experience.

No. 86, Luzerne county. Have had no experience as to arbitration, but am of opinion that owners should be allowed to control their own property.

No. 96, Luzerne county. I consider arbitration the best method of dealing with strikes in disputes with the miners.

No. 133, Northumberland county. Arbitration may do for a time, but in the end would only widen the breach, and it could only succeed for a time, when all the demagogues and many of the politicians are recognized as the common enemy of employés and not their employers, as the case is now. The ranks of the worst strikers are constantly being filled with foreigners. Americans give the least trouble in that line, therefore, we say, with our free institutions, anything of lasting benefit must come through education, compulsory if necessary, to make the necessary advance quick.

No. 199, Schuylkill county. No one should be better able to settle disputes than those who have their money invested, and those who sell their labor.

No. 207, Schuylkill county. I believe in arbitration.

No. 241, Schuylkill county. Arbitration, when referred to parties not interested, generally satisfactory.

No. 59, Allegheny county, says: The best plan of arbitration is for each company and its own employés to arbitrate their own disputes, without interference of outsiders.

No. 8, Allegheny county, says: To date, arbitration has proved a failure, but think the time not distant that it will be a success, and, when understood and honestly conducted, will obviate all trouble between operator and miner.

No. 38, Allegheny county, says: Arbitration is a good thing, if conducted honestly.

No. 15, Allegheny county, says: Arbitration would be a blessing, but we think the leaders of the employés are not in favor of it, unless they have all the advantages. The majority of the miners favor it.

No. 2, Allegheny county, says: Our experience is unsatisfactory, but believe that, had we only the miners to negotiate with, that some satisfactory arrangement could be arrived at; but, as a rule, outside influences are brought to bear (from personal interests) that prevents the operator and employé to reach a better basis.

No. 21, Allegheny county. Anything that will do away with striking is of the greatest importance; but, as a question of *morals, I regard* arbitration as nothing more nor less than two men or parties meeting, and quietly agreeing, to fleece or skin alive a third man or party, and, of course, is sure to fail, being founded *on wrong.* Arbitration, to be just, must include the consumer of the product. But I regard it as a complete failure, and is being laid aside in Europe, and the sliding scale taking its place. To avoid strikes, I see no arrangement so likely to prevail as a sliding scale, and it seems to me that a board of labor commissioners might be appointed, with authority to place a root value on labor, when value of article was—say at par—and then to rise and fall with price of article produced.

No. 22, Allegheny county. My opinion of arbitration is that, as a rule, it is the only way of settling ordinary disputes, but *ordinary disputes does*

not include strikes. Strikes are in the face of reason and common sense, and should be punished, or the instigators should be punished.

No. 47, Allegheny county. I think arbitration will work only with the operator and his employés, *each* mine settling their own business. General arbitration will not work, because it gives the large operator all the advantage. Let the operators who own and operate the mines go into a mutual agreement with their miners, and set the price of mining by the price received for coal under the tipple, and it will be to their mutual interest to sustain the price, and let the miner give the cold shoulder to those petty lawyers and political shysters who expect to get some office by arousing the bad blood that exists among certain class of laborers, and we will have the best times we have had on these rivers for years.

No. 54, Allegheny county. Our experience has been favorable to arbitration.

No. 18, Allegheny county, says: I do not agree to it at all.

No. 7, Allegheny county, says: Miners want to have it all one way, as a recent arbitration proved in this locality.

No. 48, Allegheny county, says: So far it has proved a failure.

No. 37, Allegheny county, says: We have had no experience, and our opinion not favorable.

No. 64, Bedford county, says: We think it a good plan.

No. 91, Cambria county, says: Would be well enough if the miners on the Board of Arbitration were non-union men. Don't think much of it.

No. 274, Elk county, says: Have always had to do my own arbitrating, which I found to work best, as it brought the operator and his men face to face.

No. 270, Elk county, says: I do not believe in arbitration. An operator knows his profits and pays accordingly as he can afford, and a man dissatisfied can pack his tools and leave. A man of business should govern his own affairs.

No. 137, Fayette county, says: We believe in the principle of arbitration, but have never had any experience.

No. 135, Fayette county, says: Arbitration should settle all disputes.

No. 139, Fayette county, says: Have never tried it; it would, no doubt, be excellent, if it could be started on an equitable basis.

No. 118, Fayette county, says: I don't think arbitration will amount to much in settling disputes.

No. 277, Jefferson county, says: We think favorably of arbitration, as by means of it we have been enabled to settle disputes in a satisfactory manner.

No. 276, Jefferson county, says: We are not in sympathy with it; each man should be able to settle his own affairs, then no trickery can be resorted to.

No. 163, Mercer county, says: Arbitration is of no use, unless it gives the employés their demands.

No. 279, McKean county, says: We do not believe in referring anything to arbitration; can settle disputes without strikes or arbitration.

No. 248, Westmoreland county, says: Believe it will prove a failure; have never taken an interest in it.

No. 81, Cambria county. We have had no experience with arbitration; think every encouragement should be given to test it fully. Yet the agitator and general striker will stand by no award of arbitrators.

No. 90, Clarion county. Do not believe in arbitration. We always pay what we can afford, leaving us a fair margin, making arbitration unnecessary.

No. 110, Fayette county. Have had no experience with arbitration. If properly conducted by both parties, we would approve of it.

No. 114, Fayette county. The word of the miner is not yet sufficiently *sacred* to make arbitration a success.

No. 152, Westmoreland county. We do nothing with our employés that is not frankly and fully set forth, and always have a reason, based on equity, for our action, and when anything is needed, the superintendent meets the men in a body, arbitrating the difference, and succeeds.

No. 191, Washington county. In respect to arbitration, would state that "we usually meet with our miners and consult them in regard to any difference of opinion, and mostly with success."

No. 256, Westmoreland county. "Will not enter into arbitration other than with our own men. My opinion is, that each operator knows his own business best, and should arrange accordingly with his own men, which he can do, if properly understood between operator and miners. Not pass them by unnoticed, as though they were beneath his notice; get their confidence and keep it by square dealings with them."

No. 257, Westmoreland county, says: Do not think arbitration a fair means, as it does not give general satisfaction.

No. 234, Westmoreland county, says: We consider obrselves better qualified to do our own business, than others can be to do it for us. When we cannot do it without the aid of outsiders, will stop.

No. 144, Washington county, says: We cannot see that arbitration would benefit either operator or miner.

No. 188, Washington county, says · I do not think arbitration will settle the disputes between operator and miner, and claim that labor is only worth what it will bring and no more, and all combination of labor or capital is wrong.

No. 210, Washington county, says: I have no faith in arbitration.

No. 189, Washington county, says: My opinion of arbitration is that it cannot be successfully used as a means of settling disputes.

No. 218, Washington county, says: It is the best method yet devised to settle disputes, provided, that men of honor and intelligence are selected on both sides.

Circulars sent to blast furnaces, on the question of arbitration, responds as follows:

No. 58, Columbia county. We do not believe in arbitration; every concern should manage its own business.

No. 89, Lancaster county. Do not believe in arbitration; but we never tried it.

No. 90, Lancaster county. Have had no occasion to resort to arbitration for settling disputes.

No. 92, Lancaster county. A board of arbitrators, composed of able, fearless, and honest lawyers is the best tribunal to settle disputes about past transactions, but no power should be able to compel any man to enter into any contract for the future, against his will.

No. 176, Westmoreland county, say: Arbitration is a fraud for scheming men.

No. 91, Lancaster county, says: We think employers are best calculated to settle their own disputes with employés, as a general rule.

No. 75, Fayette county, says: Would prefer doing our own arbitrating directly with our employés.

No. 139, Mifflin county. My *opinion* as to arbitration, is this: I think every man should have perfect control of his own property, and when men are dissatisfied, they should find employment where they can suit themselves best. I would not submit to any arbitration; at the same time, I think operators should divide profits, if any, with their employés.

No. 3, Armstrong county, says: Think all difference can be settled by the parties themselves, better than any other way.

No. 58, Columbia county, says: We do not believe in "arbitration;" every concern should manage its own business.

No. 6, Pittsburgh, says: In our opinion, arbitration is the fair and honorable way of getting over difficulties that may often arise between employer and employé.

Circulars sent to rolling-mills, respond as follows:

No. 42, Berks county, says: We do not favor arbitration; if any disputes arise, think it best to make a change, the dissatisfied employé seeking other fields of labor, and leaving his place to be filled by another; the laborer is worthy of his hire; if a good hand, he is retained at satisfactory wages.

No. 9, Allegheny county, says: We are quite well satisfied it would be a good means of settling disputes, if the arbitrators could be mutually and fairly chosen, and not chosen as partisans, with the avowed purpose of gaining an advantage for their respective sides.

No. 14, Allegheny county, says: When employer and employés can not agree, they should submit their disputes to arbitration, like sensible men.

No. 61, Chester county, says: The best arbitrators are the employer and their own men.

No. 77, Lackawanna county, says: Think arbitration the proper way for settling trouble, and the best.

No. 61, Chester county. The best arbitrators are the employers and their own men.

No. 125, Philadelphia, says: In contested cases, often useful, but inap-

plicable in many cases, owing to the necessity of entire secrecy being maintained by the iron masters. Publicity might often involve disaster. A man's business is his own, and no one has the right to pry into it.

No. 129, Philadelphia, says: I am in favor of arbitration.

No. 97, Mercer county. Never had any experience with arbitration. The present scale of prices for puddling appears to be equitable, and to work well. Why cannot a similar scale be adopted for mining coal?

No. 122, Perry county. Have had no experience with arbitration. Prefer settling our own affairs.

No. 105, Montgomery county. Have had no experience with arbitration. Think the better plan is for the parties interested, to settle disputes themselves.

No. 99. Mercer county, says: With the decision of a just judge, backed by the strong arm of the law to compel, arbitration might be possible; otherwise of no account.

No 98, Mercer county, says: We do not look favorably on arbitration. Fair dealing with the men with firmness, produces the best results.

No. 102, Montgomery county, says: We have generally found arbitration the most satisfactory way to settle differences with our employés.

No. 43, Berks county. Have not as yet had any experience with arbitration, and have but little faith in it. Believe in giving a respectful attention to all petitions or appeals, whether on subject of grievance or wages, or any other matter, and always give a verbal or written reply. If a man strikes, he discharges himself from our employment; and, as we have no further intercourse with him, there is nothing to arbitrate about.

IRON FOUNDRIES AND MACHINE SHOPS.

Returns received from iron foundries and machine shops in Pennsylvania, are tabulated as follows:

NAME OF MANUFACTORY.	BY WHOM OPERATED.	COUNTY.	In what year built.	Whole number of persons employed.	Assessed value of manufacturing property.	Iron castings made during the year—tons.	Amount paid annually for wages of employees.	Value of annual product.	Hours worked per day.
Birmingham,	Fischer, Thomas & Co.,	Allegheny,	1867	23	$9,200	790	$9,600 00	$30,000 00	10
Riverside,	Hartupee & Burke,	do.	1867	30		900	12,714 00		10
J. L. Lewis,	J. L. Lewis,	do.		18	8,000		6,655 00	23,288 22	10
Fort Pitt Foundry,	Mackentosh, Hemphill & Co., Limited,	do.	1878	124		4,000	58,028 00	158,891 00	10
Livingston Novelty Works,	Livingston & Co.,	do.	1867	45	6,100	700	20,000 00	75,000 00	10
Bissell Stove Works,	Bissell & Co.,	do.		41					10
McKeesport,	R. J. May & Co.,	do.	1878	17	7,000	200	7,200 00	18,000 00	10
Fort Duquesne Foundry,	Hillard & Stenil,	do.	1873	39	11,200	875	14,500 00	47,250 00	10
Apollo Iron and Brass Foundry,	C. Kettering,	Armstrong,		2			860 00	2,520 00	9
Beaver Falls Company,	Beaver Falls Company,	Beaver,	1872	30	2,000	450	14,000 00	35,000 00	10
Pleasantville Foundry,	S. W. Hann & Son,	Bedford,	1872	6		40		3,000 00	
Shires & Jordan,	Shires & Jordan,	do.		4					10
Everett Foundry,	F. Felten & Son,	do.	1873	2	2,000	21	499 00	1,890 00	10
Keystone,	William C. Asheom,	do.	1856	10	3,000	150	4,000 00		9 to 10
Franklin Iron Works,	Adam Johnson & Son,	Berks,	1840	66	40,000	1,300	10,000 00	70,000 00	10
Penn Hardware Company,	C. R. Heizmann & A. A. Heizmann,	do.	1862	143	15,000	600	35,000 00	75,000 00	10
Union Foundry and Manufact'g Co.,	Union Foundry and Manuf'g Co.,	do.	1873-4	29	12,800	271¼	5,849 82	18,817 17	9½
Gaysport,	McLanahan, Stone & Bayley,	Blair,	1863	59	5,900	580	10,410 66	40,000 00	10
Rockdale,	John W. Schwartz,	do.	1835	3	2,300	25	720 00	1,250 00	10
Means Foundry,	Charles Johnson & Co.,	Bradford,	1837	22	12,000	156	10,650 00	54,864 00	9 and 10
Lehigh Stove and Manufacturing Co.,	Lehigh Stove and Manufacturing Co.,	Carbon,	1868	35	5,150	500	13,950 61	31,615 22	10
Vanpelt, Shoop & Co.,	Vanpelt, Shoop & Co.,	Centre,	1875	6	1,200	38	2,100 00	6,000 00	10
Philipsburg,	Matthew Gowland,	do.		6	2,100	40	2,300 00	5,500 00	10
Broomell, Miles & Co.,	Broomell, Miles & Co.,	Chester,		20		40	6,000 00	25,000 00 to 30,000 00	10
Chester County Industrial Works,	John Evans,	do.	1878	11	10,000	50	3,800 00	10,000 00	10

Stewart N. Wilson,	Stewart N. Wilson,	Clarion,	1847	4	5,000	40	500 00	2,000 00	10
West Clearfield Foundry,	W. F. Plympton, G. S. Gearhart, J. T. Plympton.	Clearfield,	1875	3	500	8 to 10			10
Curwensville Foundry,	James Thompson & Son,	do.	1852	4	1,200	18	300 00	1,500 00	
Eagle Iron Works,	Knight, Agar & Co.,	Clinton,	1868	10	1,000	25	6,000 00	8,000 00	8
Lock Haven Iron Works,	J. H. Ricker,	do.	1854	55	10,000	300	29,875 00	75,750 00	Day, 10 Night, 12
Bloom Iron Works,	Harman & Hassett,	Columbia,	1875	6	2,000	86	2,400 00	5,500 00	10
Phœnix Iron Works,	J. R. Dick & Co. and Pearson Church,	Crawford,	1866	50	14,000	637	20,000 00		8 to 10
F. Monthorp & Sons,	F. Monthorp & Sons,	do.	1846	8		50	2,000 00	8,000 00	10
Mechanicsburg,	S. & G. Hauck,	Cumberland,	1857	24	4,000	220	8,700 00	25,000 00	9½ and 10
Eagle Works,	W. O. Hickok,	Dauphin,	1854	71		400	22,000 00	100,000 00	10
Musser & Schreiber,	Musser & Schreiber,	do.	1867	5	620	8	600 00	800 00	9
Susquehanna Iron Works,	Raymond & Campbell,	do.	1864	100	10,000	1,100		175,000 00	10
Summit Branch Railroad,	Summit Branch Railroad,	do.		18			8,500 00		8 to 10
Robert Wetherill & Co.,	Robert Wetherill & Co.,	Delaware,	1872	125	40,000	1,000	40,000 00	140,000 00	
Phœnix Iron Works,	Samuel Rigby,	do.	1874	38	6,000	49⅝	8,624 48	17,652 06	10
Davenport, Fairbain & Co.,	Davenport, Fairbain & Co.,	Erie,	1866	98	21,000	9,150	49,907 00	250,000 00	10
Bay State Iron Works,	Noble & Hall,	do.	1883	100	25,000	600	45,000 00	200,000 00	10 to 12
Humboldt Iron Works,	Andrew Voelk,	do.	1866	7	6,000		2,700 00	8,000 00	10
Fayette Foundry,	John Herbertson,	Fayette,	1837	13	5,000	35	2,000 00	7,000 00	10
Redstone Foundry,	Frankenberg & Moore,	do.		3		50	500 00		
The Metcalfe Manufacturing Company, Limited.	The Metcalfe Manufacturing Company, Limited.	Franklin,	1879	40	4,000	30	3,500 00	A surplus of 5 per cent.	10
J. B. Crowell & Co.,	J. B. Crowell & Co.,	do.	1875	50	17,000	80	20,000 00	60,000 00	10
Huntingdon Foundry,	Easton Blake,	Huntingdon,	1871	4		30	500 00		10
Eagle Foundry,	J. W. Scott,	do.	1864	5	1,600	24	600 00	1,000 50	9
J. S. Rodkey,	J. S. Rodkey,	Indiana,		5					10
Armagh Foundry,	William Tomb & Son.	do.	1860	5		50	1,000 00		10
Dickson Manufacturing Company,*	Dickson Manufacturing Company,	Lackawanna,	1856	359	265,000	Iron 2,250 Brass, 47	146,000 00	408,000 00	10
G. E Sherman,	G. E. Sherman,	do.	1868	2	400	30	200 00	2,500 00 to 3,000 00	
Miller's Foundry,	S. H. Miller,	do.	1840	3	1,863	25	600 00	2,000 00	10
A. C. Welchan's Machine Shops,	A. C. Welchans,	Lancaster,	1874	11	3,000		4,120 00		10
Columbia,	Perrottet & Hoyt,	do.	1835 1872	25	5,000	Iron, 250 Brass, ⅞	7,000 00	18,000 00	10
V. Andes & Sons,	V. Andes & Sons,	do.	1849	12	6,000	100	5,000 00	12,000 00	10
Valley Chief Reaper and Agricultural Works.	Marsh & Comp,	do.	1854	34	10,000	59	3,000 00	12,000 00	10 to 11
Christiana Machine Company,	Broomall & Co.,	do.		28	9,000	145	9,000 00	35,000 00	10
Brunnerville Agricultural Works,	Aaron Wissler,	do.	1848	12	6,750	85 to 100		20,000 00	8½ to 11
Lebanon Manufacturing Company,	Lebanon Manufacturing Company,	Lebanon,	1867	305	10,000	1,200	48,000 00	300,000 00	10
Phœnix Brass and Iron Works,	Edward Gaugh,	Lehigh,	1867	4	3,000	260	2,000 00	16,000 00	10 to 15
Allentown Iron Company,	Allentown Iron Company,	do.		17					
W. H. Barber & Bro.,	W. H. Barber & Bro.,	do.	1834-5	38	25,000	200	11,000 00	50,000 00	10
Davies & Thomas,	Davies & Thomas,	do.	1879	89		1,500	15,000 00	80,000 00	10
Boyd & Engle,	Boyd & Engle,	Luzerne,		2	180	50	1,000 00	2,288 90	
Conyngham Foundry,	J. D. Gitting,	do.		3			850 00	2,600 00	
Wyoming Valley Manufactur'g Company.	R. Sharpe, jr.,	do.		62			7,200 00 to 24,000 00		
Vulcan Iron Works,	Vulcan Iron Works,	do.		60		670	24,689 61	67,990 26	10
Union Stove and Manufacturing Co.,	Union Stove and Manufacturing Co.,	do.	1869	55		900	22,000 00	85,000 00	10

IRON FOUNDRIES AND MACHINE SHOPS—Continued.

NAME OF MANUFACTORY.	BY WHOM OPERATED.	COUNTY.	In what year built.	Whole number of persons employed.	Assessed value of manufacturing property.	Iron castings made during the year—tons.	Amount paid annually for wages of employees.	Value of annual product.	Hours worked per day.
Snyder Bros.,	Snyder Bros.,	Lycoming,	1863	20	$12,000	200	$8,500 00	$50,000 00	10
McVeytown Foundry,	J. W. Pincin & Son,	Mifflin,	1832	4	....	22	1,234 00	2,800 00	10
Granville Foundry,	Henry Selick,	do.	1874	4	500	4	70 00	150 00	10
Whitworth Foundry,	O. Whitworth,	do.	1854	6					
Keystone,	George E. Stauffer & Co.,	Monroe,	1870	8	1,200	100	4,500 00	12,000 00	10
Eagle Works,	Richard S. Newbold & Son,	Montgomery,	1857	47	15,000	400 to 750	15,000 00 to 20,000 00	40,000 00 to 95,000 00	10
Continental Stove & Machine Works,	Sheeler, Buckwalter & Co.,	do.	1876	59	11,000	1,000	31,000 00	90,000 00	10
Enterprise,	Crulkshank, Moyer & Co.,	Montour,	1873	18	1,500	300	4,792 08	25,730 72	10
Shimersville Hardware Works,	William Shimer Sons & Co.,	Northampton,	1861	40	4,000	360 500	7,000 00 to 10,000 00	18,000 00 to 22,000 00	10
Union Iron Works,	Charles F. Solliday,	do.	1877	3	1,000	50	525 00	2,500 00	9 and 10
Eagle,	Young & Schlough,	do.	1839	18	10,000	133	7,275 00	15,000 00	9
Elysburg Iron Works,	H. H. Swenk,	Northumberl'd	1867	4	3,000	15	500 00	1,500 00	10
George Rohrback & Sons,	George Rohrback & Sons,	do. do.	1840	6	7,000	60	1,800 00	4,500 00	10
Clinton Foundry,	Samuel Liggett,	Perry,	1830	6	1,500	25	500 00	2,000 00	10
Liberty Stove Works,	Charles Noble & Co.,	Philadelphia,	1850	130	250,000	1,700	55,000 00	170,000 00	10
Excelsior Stove Works,	Isaac A. Sheppard & Co.,	do.	1872	164	68,000	2,800	90,000 00	180,000 00	10 to 12
Car Wheel Works,	A. Whitney & Sons,	do.	....	166	...	4,350	87,400 00	350,000 00	10
William B. Bement & Son,	William B. Bement & Son,	do.	1851	425	Capital, 750,000	2,000	225,000 00	600,000 00	10
H. W. Butterworth & Sons,	H. W. Butterworth & Sons,	do.	1844	100	....	250	50,000 00	125,000 00	10
Shackamaxon Engine & Boiler Works	Henshall & Gunther,	do.	1866	20	8,500	.....	9,000 00	21,000 00	10
James Butterworth & Son,	James Butterworth & Son,	do.	1874	8	4,500	.....	4,914 00	.....	10
George C. Howard,	George C. Howard,	do.	1851	35	12,000	.....	6,190 00	17,481 70	10
Condersport,	W. B. Gardnier,	Potter,	....	5	300	20	2,000 00	....	10
Ashland Iron Works,	J. & M. Garner,	Schuylkill,	1853	32	15,750	400	10,500 00	40,000 00	10
Franklin Iron Works,	Robert Allison,	do.	1840	63	16,500	350	25,000 00	60,000 00	10
Donaldson Iron Works,	Adam Ferg,	do.	1865	17	9,000	128	3,863 00	12,500 00	10
Minersville Iron Works,	Gartley & Fox,	do.	1838	13	12,500	.....	.....	.....	10
Tamaqua Stove & Holloware Works,	Robinson & Co.,	do.	1869	14	9,600	140	3,120 00	12,000 00	10
Pennsylvania Diamond Drill Co.,	Pennsylvania Diamond Drill Co.,	do.	....	22	...	.....	11,000 00	35,000 00	10
Delano Repair Shops,	Lehigh Valley Railroad,	do.	1864	130	13,500	.....	60,000 00	....	10

Shenandoah Iron Works,		Schuylkill,		7	2,200					10
Selins Grove,	Gangler & Cooke,	Snyder,	1867	12	5,000		2,500 00			9
Salisbury Foundry,	Hay & Bro.,	Somerset,	1869	5	5,000	50 to 60	2,000 00		8,000 00	
Mansfield Foundry,	Bailey Bros.,	Tioga,	1879	4		lbs, 52,500	710 00		1,300 00	8 to 10
Blossburg Foundry,	T. I. Mooers,	do.	1872	6	3,000	120	2,700 00		7,000 00	10
Central Manufacturing Company,	Central Manufacturing Company,	Union,	1865	44	8,000	200	10,000 00		84,000 00	10
Laurelton Foundry,	S. S. Smith,	do.	1847	7	4,000	15	600 00		2,500 00	10
Ingham & Vose,	Ingham & Vose,	Wyoming,	1854	3		30	1,500 00		3,000 00	10
Variety Iron Works,	E. G. Smyser,	York,	1840	90	47,000		28,000 00			10

* Purchase of materials during the year, $122,500.

IRON FOUNDRIES AND MACHINE

NAME OF MANUFACTORY.	Weeks in operation during the year.	Iron moulders.		Machin'ts, best.		Machin'ts, ordinary.		Boilermakers.		Riveters	
		Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
Birmingham,	52	10	$2 16⅔	2	$2 25	3	*$9 00	2	$1 75	1	$2 33⅓
Riverside,	52	7	2 00	5	2 00	.	. . . .	. .	. . .	. .	. . .
J. L. Lewis,	52	. .	. . . .	6	1 58⅓	1	2 00	. .	. . .	. .	. . .
Fort Pitt Foundry,	52	40	2 00 to 2 50	28	2 25	6	2 00	. .	. . .	. .	. . .
Livingston Novelty Works,	50	23	2 00	3	2 25	1	1 50	. .	. . .	. .	. . .
						4	2 00				
Bissel Stove Works,	43	25	1 75	. .	. . . .	8	. . . .	. .	. . .	. .	. . .
			2 75								
McKeesport,	52	4	1 90 to 2 25	2	3 00	2	1 80	. .	. . .	. .	. .
Fort Duquesne Foundry,	52	15	2 00	. .	. . . .	. .	. . . .	. .	. . .	. .	. . .
Apollo Iron and Brass Foundry,	38	1	2 00	. .	. . . .	. .	. . . .	. .	. . .	. .	. . .
Beaver Falls Company,	45	10	3 00 to 3 50	. .	. . .	5	. . . .	. .	. . .	. .	. . .
Pleasantville Foundry,	40	1	. . . .	1	. . .	. .	. . . .	. .	. . .	. .	. . .
Shires & Jordan,	33 to 41	1	1 00	. .	. . . .	1	1 25	. .	. . .	. .	. . .
		1	1 33⅓								
Everett Foundry,	32	2	1 25								
Keystone,	. . . .	2	1 50 to 2 00	1	2 00	2	1 50	. .	. . .	. .	. . .
Franklin Iron Works,	52	14	1 60	7	1 50	4	1 40	. .	. . .	. .	. .
Penn Hardware Company,	48	37	2 50	1	3 00	1	1 50		. . .	. .	. . .
Union Foundry and Manufacturing Co.,	52	13	1 35	. .	. . . .	1	1 35	. .	. . .	. .	. . .
Gaysport,	50	11	1 70	5	2 00	2	1 60	. .	. . .	. .	. . .
Rockdale,	52	1	1 50	. .	. . . .	. .	. . .	. .	. . .	. .	. . .
Means Foundry,	52	4	2 00	5	1 75	1	1 50	1	1 75	. .	. . .
Lehigh Stove and Manufacturing Co.,	49	18	2 25	. .	. . . .	. .	. . .	. .	. . .	. .	. . .
Vanpelt, Shoop & Co.,	40	1	2 00	1	2 00	. .	. . . .	. .	. . .	. .	. . .
Philipsburg,	52	1	2 00	2	2 00	1	1 25	. .	. .	. .	. . .
Broomell, Miles & Co.,	52	4	1 60	2	1 60	. .	. . . .	. .	. . .	. .	. . .
Chester County Industrial Works,	52	2	2 25	2	1 75	. .	. . . .	. .	. . .	. .	. . .
Stewart N. Wilson,	32	2	1 25	2							
West Clearfield Foundry,	34	1	. .	. .	. . . .	. .	. . . .	. .	. . .	. .	. . .
Curwensville Foundry,	. . . .	1	1 50	. .	. . . .	. .	. . . .	. .	. . .	. .	. . .
Eagle Iron Works,	52	2	2 00	4	2 00	. .	. . . .	. .	. . .	. .	. . .
Lock Haven Iron Works,	52	4	2 00	10	2 00	5	. . . .	2	. . .	2	. . .
Bloom Iron Works,	50	2	1 50	1	1 75	1	1 50	. .	. . .	. .	. . .
Phœnix Iron Works,	52	10	2 00 to 2 25	6	2 25 to 2 50	8	1 75 to 2 00	4	2 50	. .	. . .
F. Moulthorp & Sons,	40	2	2 00	4	2 00	. .	.	. .	. . .	. .	. . .
Mechanicsburg,	52	3	1 25	3	1 50	1	1 33	. .	. .	. .	. . .
Eagle Works,	52	4	1 75	11	2 00 to 2 25	2	1 75	. .	. . .	. .	. . .
Musser & Schreiber,	20 to 30	1	1c. ₱ lb	. .	. . . .	2	1 50	. .	. . .	. .	. . .
Susquehanna Iron Works,	52	33	. . . .	5	. . . .	3	. . . .	. .	. . .	. .	. . .
Summit Branch Railroad,	52	. .	. . . .	2	1 62	1	1 44	1	1 62	. .	. . .
Robert Wetherill & Co. Phœnix Iron Works,	52	4	*7 33	7	*13 42	7	*9 86	. .	. . .	. .	. . .
Davenport, Fairbain & Co.,	50	32	3 00	. .	. . . .	. .	. . . .	. .	. . .	. .	. . .
Bay State Iron Works,	52	4	2 00	20	2 25	5	1 50	16	2 25	6	2 25
Humboldt Iron Works,	52	. .	. .	1	2 25	1	1 75	. .	. .	. .	. . .
				1	2 50						
Fayette Foundry,	28	1	2 25	1	2 00	2	1 50	1	2 25	1	1 25

SHOPS.—EMPLOYEES' WAGES.

Holders-on.		Flangers		Black-smiths.		Foremen.		Engineers		Pattern-makers.		Carpen-ters.		Laborers		Appren-tices.		Other employees	
Number.	Wages	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
..	..	..	..	..	..	..	..	..	..	1	$2 25	..	..	3	$1 16⅔	1	$0 50		
..	..	..	..	1	$2 00	2	$3 00	2	$1 75	1	2 25	1	$2 00	5	1 15	6	1 00		
..	..	..	..	2	1 58⅓	1	2 50	1	1 58⅓	2	1 58⅓	..	..	..	..	2	66⅔		
																3	83⅓		
..	..	..	..	4	2 33 to 3 00	3	..	1	1 75	4	2 25	1	2 00	30	1 00 to 1 50	7	66 to 1 00		
..	..	..	..	..	..	1	3 50	1	2 25	2	2 25	..	..	3	1 08	4	41 to 58	3	
.	..	..	..	1	..	1	..	..	..	.	..	1	..	..	..	5	1 00 1 50		
..	..	..	..	1	2 25	1	3 00	..	..	1	1 75	1	1 75	3	1 25	..	..	1 1	$1 00
.	..	..	..	..	..	1	3 25	1	1 50	2	2 50	1	2 00	7	1 25	12	*5 00 *9 00		
..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1 00				
..	..	..	..	..	..	1	..	1	..	..	..	1	..	6	..	1 4	66 1 50 to 2 00	1	
..	..	..	..	1	1 25	1	..	1	..	1	..	1							
..	..	..	..	1 1	1 00 2 00	..	..	..	..	..	..	1	2 00	2	1 00				
..	..	..	..	2	2 50	5	2 50	1	1 25	3	1 75	5	1 25	20	1 00	5	40		
..	..	..	..	..	..	4	2 75	2	1 75	1	2 75	1	1 25	5	1 25	80	40 to 1 00	11	1 25 to 2 25
..	..	..	..	..	..	1	2 00	1	1 35	1	1 55	..	..	2	1 00	3 7	50 40		
..	..	..	..	2	2 50	2	1 00	2	1 75	2	2 25	1	2 00	19	1 00	13	60 to 75		
..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	1 00		
..	..	..	..	1	2 00	1	2 50	1	1 00	1	1 75	1	1 75	1	1 00	1 1	50 1 00	1 2	1 50 1 75
..	..	..	..	..	..	1	1 50	1	1 50	1	1 40	..	..	9	90	1 2	50 55	2	
..	..	..	..	1	2 00	..	..	..	..	..	..	1	1 50	..	..	2	77		
..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1 25	1	75		
..	..	..	..	2	2 00	1	2 75	1	1 25	1	1 75	1	1 75	3	1 00	5	50		
..	..	..	..	2	2 00	..	..	1	1 50	1	2 00	1	2 00	..	..	2	66⅔		
..	..	..	..	1	..	..	..	..	..	..	..	1							
..	..	..	..	..	..	..	..	..	..	..	..	1	1 50	..	..	..	..	2	
..	..	..	..	1	2 00	1	2 00	1	2 00	1	2 00								
1	..	1	..	2	..	1	2 00	2	..	2	..	5	..	5	..	2	1 00	11	
..	..	..	..	..	..	..	..	..	..	1	1 50	..	..	1	1 00				
2	$1 50	1	$3 00	1 1	2 50 3 25	..	..	1	1 50	1	2 50	..	..	..	..	2 4	1 00 75	7 2	1 25 1 50
..	..	..	..	1	2 00	..	..	..	..	1	2 00	..	..	..	..	2			
..	..	..	..	1	1 50	1	2 50	1	1 15	1	1 75	4	1 33⅓	2	75	1 2	50 60	4	1 20 to 1 50
..	..	..	..	1	2 00	3	3 00	1	2 25	1	2 00	6	1 85	5	1 10	17	66 to 1 00	12	1 00 to 3 00
..	..	..	..	1	..	..	..	..	..	1	1 25								
..	..	..	..	3	..	4	..	1	..	4	..	..	..	15	..	9	..	23	
..	..	..	..	1 1 2	1 04 1 21 1 62	1	3 00	..	..	..	..	5	1 46	.	..	..	..	1 1	1 30 1 35
..	..	..	..	1	1 85	1	2 16⅔	..	..	1	1 50	5	*7 90⅔	5	*6 16⅔	5	*2 50	1 1	1 91⅔ 1 66⅔
..	..	..	..	..	..	4	1 75	2	1 50	2	2 50	.	..	58	1 50				
3	1 25	2	2 50	4	2 25	5	3 75	1	1 25	4	2 00	1	1 75	22	1 12	6	70	1	2 00
..	..	..	..	1	3 00	..	..	1	1 50	..	..	..	..	1	1 00	1	1 00		
.	..	..	..	2	2 00	2	1 25	..	..	1	2 25	..	..	1	1 25	..	..	1	2 00

IRON FOUNDRIES AND MACHIRE SHOPS.–

NAME OF MANUFACTORY.	Weeks in operation during the year.	Iron moulders.		Machin'ts, best.		Machin'st, ordinary,		Boiler makers.		Riveters	
		Number.	Wages.	Number.	Wages.	Number	Wages.	Number.	Wages.	Number.	Wages.
Redstone Foundry,		1									
The Metcalf Manufacturing Company, Limited,	45	2	$1 60	2	$1 40	6	$1 20				
J. B. Crowell & Co.,	48	8	1 75	2	1 75	4	1 75				
Huntingdon Foundry,	52	2	2 25			1	2 25				
Eagle Foundry,	26	1	1 25			1	1 25				
J. S. Rodkey,	50	1				1					
Armagh Foundry,	52	2	1 25								
Dickson Manufacturing Company,	52	25	1 76	67	1 70	27	1 32	11	$1 56	4	$1 65
G. E. Sherman,		1									
Miller's Foundry,	20 to 32	1	1 60								
A. C. Welchan's Machine Shops,	52			6	2 00	1	1 50				
Columbia,	52	4	1 50 to 2 20	2	1 70 to 2 20	2	1 40 to 1 60				
V. Andes & Sons,	52	3	1 50			2	1 50				
Valley Chief Reaper and Agricultural Works,	4 to 20	5	1 25	1	1 75	5	1 25				
Christiana Machine Company,	52	6	1 60	2	1 60	6	1 75				
Brunnerville Agricultural Works,	51	2	1 00 to 1 50	1	1 00 to 1 50						
Lebanon Manufacturing Company,	52	25	1 25	25	1 60	10	1 20				
Phœnix Brass and Iron Works,	45	4	1 60								
Allentown Iron Company,		1	1 40			3	1 50	1	1 75	1	85
		1	2 00								
W. H, Barber & Bro.,	52	7	1 35	5	1 40	5	1 25	1	1 35		
Davies & Thomas,	40	41	1 50	6	1 60						
Boyd & Engle,		1	1 70								
Conyngham Foundry,		1									
Wyoming Valley Manufacturing Company,		8		14	1 40 to 1 90						
Vulcan Iron Works,	52	14		17	1 50 to 1 90			5	1 45 to 1 80		
Union Stove and Manufacturing Co,	48 to 52	25									
Snyder Brothers,	50	4	1 75	6	2 00	2	1 75				
McVeytown Foundry,	36 to 45	1	1 50	1	2 00	1	1 25				
Grauville Foundry,	1 to 4	2	1 00			1	1 50				
Whitworth Foundry,	52	1	1 25	1							
Keystone,	52	1	2 00	5	1 25 to 2 00						
Eagle Works,	52	7	1 75 to 2 00	8	1 75			1	2 50	1	1 25
Continental Stove and Machine Works,	50	40	2 50 to 4 75	1							
Enterprise,	52	4	1 75	2	2 05	3	1 50	1	1 25		
Shimersville Hardware Works,	52	18	1 00 to 1 75	1	1 75	4	1 00 to 1 25				
Union Iron Works,	40	2									
Eagle,	52	4	1 62	4	1 62	1	1 62				
Elysburg Iron Works,	26	1	1 75								
George Rhorbaek & Sons,	39	2	2 00	1	2 50						
Clinton Foundry,	45	1		1		1					
Liberty Stove works,	52	64	2 00			15	2 00				
Excelsior Stove Works,	47	71	3 00			2	2 50				

EMPLOYEES' WAGES—Continued.

Holders-on.		Flangers		Blacksmiths.		Foremen.		Engineers		Pattern makers.		Carpenters.		Laborers		Apprentices.		Other employees.	
Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
. .	. . .	. .	. . .	. .	. . .	. .	. . .	. .	. . .	. .	. . .	. .	. . .	. .	. . .	. .	. . .	2	
. .	. . .	. .	. . .	2	$1 60	1	$1 50	1	$1 20	1	$2 50	10	$1 40	. .	. . .	13	$0 45	1	$1 50
																		1	2 25
. .	. . .	. .	. .	3	1 75	1	1 75	1	1 75	1	1 75	10	1 75	10	1 00	4	60	6	
. .	. . .	. .	. . .	1	2 00														
. .	. . .	.	. . .	1	. .	. .	. . . .	. .	. . . .	. .	. . .	1	. . .	1					
. .	. . .	. .	. . .	2	. . .	. .	. . . .	. .	. . . .	. .	. . .	. .	. . .	1					
. .	. . .	. .	. . .	. .	. . .	1	1 25	. .	. . .	. .	. . .	. .	. . .	.	. . .	1	. . .	1	1 25
3	$1 10	1	$1 85	20	1 60	8	†74 60	2	2 47	18	1 80	. .	. . .	30	1 12	35	45	108	1 00
																	to		to
																	1 10		3 15
. .	. . .	. .	. . .	. .	. . .	. .	. . . .	. .	. . . .	. .	. . .	1							
. .	. . .	. .	. . .	. .	. . .	. .	. . . .	. .	. . . .	. .	. . .	1	. . .	. .	. . .	. .	. . .	1	†25 00
. .	. . .	. .	. . .	. .	. . .	. .	. . . .	. .	. . . .	. .	. . .	1	1 75	. .	. . .	2	50	1	2 00
. .	. . .	. .	. . .	1	2 00	2	3 00	1	1 00	1	1 70	1	1 25	5	1 00	4	40	1	1 35
										1	2 00						to		
																	65		
. .	. . .	. .	. . .	2	1 50	. .	. . .	. .	. . . .	1	1 50	4	1 50						
. .	. . .	.	. . .	2	1 50	4	1 75	1	1 25	. .	. . .	4	1 25	4	1 00	4	60	2	1 25
																		2	1 50
. .	. . .	. .	. .	1	1 80	2	2 25	. .	. . . .	3	1 75	. .	. .	3	1 00	5	75		
. .	. . .	. .	. . .	1	1 00	. .	. . . .	. .	. . . .	1	1 00	4	1 00	2	1 00	1	*5 00		
					to						1 50		to		to				
					1 50								1 50		1 50				
. .	. . .	. .	. . .	50	1 50	1	2 00	1	1 20	3	1 75	75	1 25	75	80	3	38	15	1 25
																10	40		
																4	46		
																8	50		
. .	. . .	. .	. . .	2	1 55	1	1 85	1	1 00	. .	. . .	1	1 30	5	85				
. .	. . .	. .	. . .	1	1 50	2	2 00	1	1 25	3	1 25	1	60	3	80	2	50		
																7	40		
. .	. . .	. .	. . .	1	1 50	3	2 00	1	1 50	3	1 50	2	1 25	10	1 00	18	45	1	
																	to	1	1 25
																	50	2	1 00
. .	. . .	. .	. . .	. .	. . .	. .	. . . .	. .	. . . .	1	2 00								
. .	. . .	. .	. . .	. .	. . .	. .	. . . .	. .	. . . .	. .	. . .	1	1 50	. .	. . .	1			
. .	. . .	. .	. . .	3	. . .	. .	. . . .	. .	. . . .	3	. . .	1	. . .	26	. . .	6	50	1	
																	to		
																	1 25		
. .	. . .	. .	. . .	4	1 62	. .	. . . .	1	1 25	4	1 50	1	1 50	1	1 15	12	50	1	1 25
					to						to			1	1 30		to	1	1 30
					2 25						2 10						1 20		
. .	. . .	. .	. . .	. .	. . .	1	2 25	1	1 40	1	1 75	1	1 75	3	1 40	9	50	11	
						1	2 50			1	2 25						to	1	1 75
																	60		
				2	2 00	1	3 50	1	1 50	2	2 00	. .	. . .	2	1 25				
. .	. . .	. .	. . .	.	. . .	. .	. . . .	. .	. . . .	. .	. . .	1	1 50						
. .	. . .	. .	. . .	1	1 00														
. .	. .	. .	. . .	1	. . .	. .	. . . .	. .	. . . .	. .	. . .	1	1 25	. .	. .	1	35		
																1			
. .	. . .	. .	. .	1	1 50	.	. . . .	. .	. . . .	1	1 60								
										.									
1	1 10	. .	. . .	1	1 75	5	2 50	1	75	4	1 50	. .	. . .	12	1 10	5	41		
				1	2 50		to				to				to		to		
							3 00				2 00				1 50		67		
. .	. . .	. .	. . .	1	. . .	1	. . . .	1	. . . .	. .	. . .	3	. . .	9	1 50	3	1 00		
															to				
															2 00				
1	1 00	. .	. . .	1	1 75	. .	. . . .	. .	. . . .	1	2 30	1	1 50	. .	. . .	3	75		
																1	1 00		
. .	. . .	. .	. . .	. .	. . .	. .	. . . .	1	1 25	. .	. . .	1	1 00	3	80	8	80	4	1 25
															to		to		to
															1 00		75		1 50
. .	. . .	. .	. . .	. .	. . .	. .	. . . .	. .	. . . .	. .	. . .	. .	. . .	. .	. . .	1			
. .	. . .	. .	. . .	1	1 80	2	2 34	1	1 54	1	1 98	1	1 12	1	1 35	1	50	1	1 08
. .	. . .	. .	. .	. .	. . .	. .	. .	1	1 00	1	1 50	. .	. . .	.	. . .	1	1 00		
. .	. . .	. .	. . .	1	1 50	. .	. . . .	. .	. . . .	1	2 00	. .	. . .	1	1 00				
. .	. . .	. .	. . .	1	. . .	. .	. . . .	. .	. . . .	. .	. . .	2							
. .	. . .	. .	. . .	1	2 00	1	. .	1	2 25	. .	. . .	3	2 00	12	1 50	23	50	10	1 50
. .	. . .	. .	. . .	1	2 00	5	4 90	1	2 33	5	2 50	4	2 33	33	1 65	20	65	22	1 50
																	to		to
																	83		4 16

IRON FOUNDRIES AND MACHINE

NAME OF MANUFACTORY.	Weeks in operation during the year.	Iron moulders.		Machinists best.		Machinists ordinary.		Boiler makers.		Riveters	
		Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
Car Wheel Works,	45 to 51	26	$3 04	1	$2 60	2 6	$3 00 2 25	..	....	..	....
William B. Bement & Son,	52	22	1 50 to 2 60	45	2 00 to 3 00	135	1 50 to 1 90	..	....	..	....
H. W. Butterworth & Sons,	52	8	2 16	..	....	25	2 25	..	....	..	....
Shackamaxon Engine and Boiler Works,	52	..	....	7	2 50	..	....	3	$2 00	..	....
James Butterworth & Son,	52	..	....	5	2 25	..	....	..	....	..	..
George C. Howard,	52	..	....	10	2 00	15	....	..	....	..	....
Coudersport,	40	1	2 50	2	....	..	....	..	....	..	....
Ashland Iron Works,	52	5	1 50	5	1 75	..	....	3	1 66	.	....
Franklin Iron Works,	52	15	1 70	3	1 85	22	1 55	..	....	..	....
Donaldson Iron Works,	52	2	1 66	2	1 75	2	1 50	2	1 75	..	....
Minersville Iron Works,	52	2	....	..	....	3	....	2	....	..	....
Tamaqua Stove and Holloware Works,	48	4	1 75	1	2 00	1	....	..	....	.	....
Penusylvania Diamond Drill Company,	52	..	....	12	1 85	..	....	..	....	..	....
Delano Repair Shops,	52	..	....	25	2 00	10	1 80	4	2 00	4	$2 00
Shenandoah Iron Works,	52	1	1 75	1	....	1	*9 00	..	....	..	....
Selinsgrove,	38	2	2 60	2	2 00	1 1	75 1 00	..	....	..	....
Salisbury Foundry,	....	1	1 50	1	1 50	..	....	..	....	..	....
Mansfield Foundry,	....	1	1 50	..	....	1	1 50	.	....	..	....
Blossburg Foundry,	52	3	....	..	....	..	....	..	....	..	....
Central Manufacturing Company,	52	8	1 50	3	1 80	5	1 25	..	....	..	....
Laurelton Foundry,	39	1	1 50	1	1 50	..	....	..	....	..	....
Ingham & Vose,	50	1	2 00	1	2 50	..	..	..	..	..	....
Variety Iron Works,	51	28	1 90	8	2 00	10	1 60	..	....	..	....

* Wages paid per week. † Wages paid per month. ‡ Per year.

SHOPS.—EMPLOYEES' WAGES.—Continued.

Holders-on.		Flangers		Blacksmiths.		Foremen.		Engineers		Pattern-makers.		Carpenters.		Laborers		Apprentices.		Other employees	
Number.	Wages.	Number.	Wages.	Number	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
..	...	..	..	1	$2 50	3	$4 00	1	$2 35	1	3 00	2	2 75	112	1 60	..	...	7	$1 70
																		4	1 50
..	...	..	..	8	1 70	‡3	900 00	1	1 80	10	1 50	4	...	125	1 10	41	$0 40	28	
					to		to				to				to		to		
					2 20		2000 00				2 20				1 70		1 00		
..	..	..	..	2	2 50	5	3 50	1	2 00	6	2 16	..	..	37	1 33	10	75	6	2 33
1	$1 50	..	..	1	2 25	1	2 50	..	..	..	..	..	..	..	..	6	75	1	1 50
..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	2	92		
..	..	..	..	1	1 75	1	2 00	..	..	2	1 66⅔	..	..	..	..	2	75	1	1 13
																		3	2 00
..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1 50				
..	..	..	..	2	1 66	3	2 00	1	1 33	1	1 75	1	1 50	4	1 25	4	60	1	1 30
																		1	1 33
																		1	1 67
..	..	..	..	2	1 85	3	..	1	..	3	2 25	..	..	5	1 10	9	60		
..	..	..	..	2	1 66	2	2 25	..	..	1	2 75	..	..	1	1 10	3	66		
																2	75		
..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	..	1			
..	..	..	..	..	..	..	..	1	..	1	..	..	..	2	..	4			
..	..	..	..	1	2 00	1	2 50	1	1 37	2	2 00	..	..	..	..	2	1 28	1	1 30
																		1	1 40
																		1	2 50
4	1 10	..	..	7	2 00	5	2 50	1	1 25	1	2 50	13	1 90	27	1 12½	14	80	3	1 50
																		8	1 75
																		4	2 00
..	..	..	..	1	2 10	..	..	..	..	..	..	1	1 75	1	1 00				
												1	1 25						
..	..	..	..	1	1 50	1	2 00	..	..	1	2 00	1	1 25	1	75	1	1 25		
..	..	..	..	1	1 25	1	1 50	..	..	..	..	..	..	1	1 25				
..	..	..	..	..	..	..	..	..	..	1	1 00	..	..	..	..	..	1 25		
..	..	..	..	..	..	..	..	..	..	..	..	..	..	3					
..	..	..	..	3	1 50	3	2 00	1	1 25	1	1 60	4	1 30	16	1 20				
..	..	..	..	..	..	..	..	..	..	1	1 50	3	1 25	1	75				
..	..	..	..	..	..	..	..	..	..	1	2 00								
..	..	..	..		..	3	..	1	..	5	..	..	..	..	..	14	30	19	

RECAPITULATION—Iron Foundries and Machine Shops—Employees.

COUNTY.	Number of returns.	Number of iron moulders.	Number of machinist, best.	Number of machinist, ordinary.	Number of boiler makers.	Number of riveters.	Number of holderson.	Number of flangers.	Number of blacksmith.	Number of foremen.	Number of engineers.	Number of pattern makers.	Number of carpenters.	Number of laborers.	Number of apprentices and boys.	Number of other employees.
Allegheny,	8	124	46	25	2	1	....	....	9	10	6	13	5	51	40	5
Armstrong,	1	2	....	....	....	....	....	....	....	....	....	....	....	1	....	....
Beaver,	1	10	....	5	....	....	....	....	....	1	1	....	1	6	5	1
Bedford,	4	7	2	3	....	....	....	....	3	1	1	1	2	2		
Berks,	3	64	8	6	....	....	....	....	2	10	4	5	6	27	95	11
Blair,	2	12	5	2	....	....	....	....	2	2	2	2	1	20	14	
Bradford,	1	4	5	1	1	....	....	....	1	1	1	1	1	1	2	3
Carbon,	1	18	....	....	....	....	....	....	....	1	1	1	....	9	3	2
Centre,	2	2	3	1	....	....	....	....	1	....	....	....	1	1	3	
Chester,	2	6	4	....	....	....	....	....	4	1	2	2	2	3	7	
Clarion,	1	2	2													
Clearfield,	2	2	....	....	....	....	....	....	1	....	....	....	2	....	....	2
Clinton,	2	6	14	5	2	2	1	1	3	2	3	3	5	5	2	11
Columbia,	1	2	1	1	....	....	....	....	....	....	....	1	....	1		
Crawford,	2	12	10	8	4	....	2	1	3	....	1	2	....	....	8	9
Cumberland,	1	3	3	1	....	....	....	....	1	1	1	1	4	2	3	4
Dauphin,	4	38	18	8	1	....	....	....	9	8	2	6	11	20	26	27
Delaware,	2	4	7	7	....	....	....	....	1	1	....	1	5	5	5	2
Erie,	3	36	22	6	16	6	3	2	5	9	4	6	1	81	7	1
Fayette,	2	2	1	2	1	1	....	....	2	2	....	1	....	1	....	3
Franklin,	2	10	4	10	....	....	....	....	5	2	2	2	10	10	17	8
Huntingdon,	2	3	....	2	....	....	....	....	2	....	....	....	1	1		
Indiana,	2	3	....	1	....	....	....	....	2	1	....	....	....	1	1	1
Lackawanna,	3	27	67	27	11	4	3	1	20	8	2	18	2	30	35	109
Lancaster,	6	20	12	16	....	....	....	....	7	8	2	7	14	14	16	6
Lebanon,	1	25	25	10	....	....	....	....	50	1	1	3	75	75	25	15
Lehigh,	4	54	11	8	2	1	....	....	4	6	3	6	4	18	27	4
Luzerne,	5	39	31	....	5	....	....	....	7	2	2	10	4	31	28	15
Lycoming,	1	4	6	2	....	....	....	....	2	1	1	2	....	2		
Mifflin,	3	4	2	2	....	....	....	....	2	....	....	....	2	....	2	
Monroe,	1	1	5	....	....	....	....	....	1	....	....	1				
Montgomery,	2	47	9	....	1	1	1	....	3	6	2	4	3	21	8	
Montour,	1	4	2	3	1	....	1	....	1	....	....	1	1	....	4	
Northampton,	3	24	5	5	....	....	....	....	1	2	2	1	2	4	10	5
Northumberland,	2	3	1	....	....	....	....	....	1	....	1	2	....	1	1	
Perry,	1	1	1	1	....	....	....	....	1	....	....	....	2			
Philadelphia,	8	191	68	200	3	....	1	....	15	22	5	24	14	319	104	82
Potter,	1	1	2	....	....	....	....	....	....	....	....	....	....	....	2	
Schuylkill,	8	29	49	39	11	4	4	....	15	14	5	9	15	46	39	21

| | | |

RECAPITULATION.—Iron Foundries and Machine Shops—Employees.

COUNTY.	AVERAGE DAILY WAGES.			Average weeks employed.	AVERAGE EARNINGS.					
					YEARLY.			WEEKLY, (52 WEEKS.)		
	Skilled.	Unskilled.	Apprentices and boys.		Skilled.	Unskilled.	Apprentices and boys.	Skilled.	Unskilled.	Apprentices and boys.
Allegheny,	$2 14	$1 22	$0 96	51	$654 84	$373 32	$293 76	$12 59	$7 18	$5 65
Armstrong,	2 00	1 00	. .	38	456 00	228 00	. . . . .	8 77	4 38	
Beaver,	3 25	. . . .	1 53	45	877 50	. . . . .	413 10	16 88	. . . .	7 94
Bedford,	1 49	1 00	. . . .	36	321 84	216 00	. . . . .	6 19	4 15	
Berks,	1 98	1 22	66	51	605 88	373 32	201 96	11 65	7 18	3 88
Blair,	1 80	1 00	69	51	550 80	306 00	211 14	10 59	5 88	4 06
Bradford,	1 81	1 50	75	52	564 72	468 00	234 00	10 86	9 00	4 50
Carbon,	2 14	90	53	49	629 16	264 60	155 82	12 10	5 09	3 00
Centre,	1 84	1 25	76	46	507 84	345 00	209 76	9 77	6 63	4 03
Chester,	1 84	1 00	55	52	574 08	312 00	171 60	11 04	6 00	3 30
Clarion,	1 25	. . . .	. . . .	32	240 00	. . . . .	. . . . .	4 62		
Clearfield,	1 50	. . . .	. . . .	34	306 00	. . . . .	. .	5 88		
Clinton,	2 00	. . . .	1 00	52	624 00	. . . . .	312 00	12 00	. . . .	6 00
Columbia,	1 55	1 00	. . . .	50	465 00	300 00	. . . . .	8 95	5 77	
Crawford,	2 15	1 31	83	46	593 40	361 56	229 08	11 41	6 95	4 41
Cumberland,	1 45	1 15	57	52	452 40	358 80	177 84	8 70	6 90	3 42
Dauphin,	1 88	1 69	83	45	507 60	456 30	224 10	9 76	8 78	4 31
Delaware,	1 70	1 25	42	52	530 40	380 00	131 04	10 20	7 50	2 52
Erie,	2 41	1 40	74	51	737 46	428 40	226 44	14 18	8 23	4 35
Fayette,	1 77	1 62	. . . .	28	297 36	272 16	. .	5 72	5 23	
Franklin,	1 60	1 15	49	46	441 60	317 40	135 24	8 49	6 10	2 60
Huntingdon,	1 88	. . . .	. . . .	39	438 92	. . . .	. . . .	8 44		
Indiana,	1 25	1 25	. . . .	51	382 50	382 50	. . . . .	7 36	7 36	
Lackawanna,	1 83	1 12	77	39	428 22	262 08	180 18	8 23	5 04	3 47
Lancaster,	1 60	1 17	59	35	336 00	245 70	123 90	6 46	4 72	2 38
Lebanon,	1 37	83	44	52	427 44	258 96	137 28	8 22	4 98	2 64
Lehigh,	1 48	95	45	46	408 48	262 20	124 20	7 86	5 04	2 39
Luzerne,	1 72	1 37	76	51	526 32	419 22	232 16	10 12	8 06	4 46
Lycoming,	1 97	1 25	. . . .	50	591 00	375 00	. . . . .	11 36	7 21	
Mifflin,	1 32	. . . .	35	31	245 52	. . . . .	65 10	4 72	. . . .	1 25
Monroe,	1 65	. . . .	. . . .	52	514 80	. . . . .	. . . . .	9 90		
Montgomery,	2 89	1 54	71	51	894 34	471 24	217 26	17 20	9 06	4 18
Montour,	1 67	. . . .	81	52	521 04	. . .	252 72	10 02	. . .	4 86
Northampton,	1 47	1 18	51	48	423 36	339 84	146 88	8 14	6 54	2 82
Northumberland,	1 78	1 00	1 00	33	352 44	198 00	198 00	6 78	3 81	3 81
Perry,	. . . .	. . . .	. . . .	45						
Philadelphia,	2 23	1 59	66	51	682 38	486 54	201 96	13 12	9 36	3 88
Potter,	2 50	1 50	. . . .	40	600 00	360 00	. . . .	11 50	6 92	
Schuylkill,	1 82	1 33	74	52	567 84	414 96	230 88	10 92	7 98	4 44
Snyder,	1 77	75	25	38	403 56	171 00	57 00	7 76	3 29	1 10
Somerset,	1 44	1 25								
Tioga,	1 33	. .	25	52	414 96	. . . . .	78 00	7 98	. . . .	1 50
Union,	1 50	1 17	. . . .	46	414 00	322 92	. . . . .	7 96	6 21	
Wyoming,	2 17	. . . .	. . . .	50	651 00	. . . . .	. . . . .	12 52		
York,	1 85	. . . .	30	51	566 10	. . . . .	91 80	10 89	. . . .	1 77

GLASS MANUFACTURE.

The manufacture of glass is largely identified with the leading industries of the State. It engaged the attention of the early settlers. Workmen skilled in this particular branch being brought over from the mother country, but like many other mechanics, when their term of agreed service had expired, they would turn their attention to agricultural pursuits, by settling upon lands adapted to that purpose. Under the auspices of the Proprietary and the Free Society of Traders, one or two attempts were made to manufacture glass during the seventeenth century. In a letter to the society, Penn alludes to their tannery, saw-mill, and glass-house—the last two "conveniently posted for water carriage."

Bishop, in his History of American Manufacture, says: "We are unable to say where the glass-house was, but it proved unsuccessful, as did several other efforts of Penn to introduce manufactures." Soon afterwards a glass-house and pottery was established at Frankford, near Philadelphia, by the English Friends who settled there. Notwithstanding good material, from which good glass is made, was in abundance, no progress was made in its manufacture before the revolution.

Henry William Stiegel, a German baron, had a glass-house in operation in the year 1770, at Manheim, near Lancaster, but during the war that followed, he became embarrassed, and the glass works were abandoned. The first glass factory in Pittsburgh, which has since given that place such remarkable eminence in the manufacture of this commodity, was commenced about 1795. About one half of the glass now made in this State, is manufactured in the latter city, the rise and progress of which was given at some length in the report of this bureau, in 1875–76.

The following table, taken from the "Glass Journal," shows the number of glass factories in Pittsburgh, in 1879:

	Works.	*Pots.*	*Hands.*	*Product.*
Table ware,	24	242	1,895	$2,000,000 00
Window glass,	24	234	1,200	2,000,000 00
Flint glass bottles,	8	66	619	420,000 00
Glass chimneys,	9	90	790	500,000 00
Green glass bottles,	10	67	944	1,200,000 00
Total,	75	699	5,448	$6,120,000 00

From the returns received, the following tabulation has been made:

GLASS MANUFACTORIES

Number of returns.	NAMES OF MANUFACTORY.	BY WHOM OPERATED.	COUNTY.
1	O'Hara Glass Works,	O'Hara Glass Company, (Limited,)	Allegheny,
2	Richards & Hartley Flint Glass Co.,	Richards & Hartley Flint Glass Co.,	do.
3	Doyle & Co.,	William Doyle, William Beck,	do.
4	Ripley & Co.,	Ripley & Co.,	do.
5	Crystal Glass Company,	Crystal Glass Company,	do.
6	McKee & Brothers,	McKee & Brothers,	do.
7	Ihmsen Glass Company, (Limited,)	Ihmsen Glass Company, (Limited,)	do.
8	Excelsior Flint Glass Company,	Excelsior Flint Glass Company,	do.
9	Lindsay Flint Glass Co., (Limited,)	Lindsay Flint Glass Co., (Limited,)	do.
10	Keystone Flint Glass Works,	Muzzy & Co.,	do.
11	Tibby Brothers,	Tibby Brothers,	do.
12	Thomas Weghtman & Co.,	Thomas Weghtman & Co.,	do.
13	American Glass Works,	Duncan, Campbell & Co.,	do.
14	A. & D. H. Chambers,	A. & D. H. Chambers,	do.
15	Cunningham & Co.,	Cunningham & Co.,	do.
16	Campbell, Jones & Co.,	Campbell, Jones & Co.,	do.
17	Rochester Tumbler Company,	Rochester Tumbler Company,	Beaver,
18	Duquesne Glass Works,	Duquesne Glass Works,	Fayette,
19	Nauvoo Glass Works,	George Wamhoff & Co.,	do.
20	East Stroudsburg Glass Co., (Limited,)	East Stroudsburg Glass Co., (Limited,)	Monroe,
21	Philadelphia Glass Works,	Burgin & Sons,	Philadelphia,
22	Dyottville Glass Works,	H. B. Benners,	do.
23	West Philadelphia Flint Glass Works,	Storm Brothers,	do.
24	Washington Flint Glass Works,	McCrea, Gill & Murray,	do.
25	Jefferson Flint Glass and Sand Blast Works,	Rohrbacher & Horman,	do.
26	Blossburg Glass Works,	Hirsch, Ely & Co.,	Tioga,

IN PENNSYLVANIA.

When erected.	Annual capacity.	Value of annual product.	Number of employees at present.	Weeks in operation during the year.	Hours worked per day.	If running at full capacity, how many could you employ.	KIND OF WARE MANUFACTURED.
1850	$275,000	$147,800	139	50	8 to 10	240	Pressed.
1865	125,000	125,000	127	48	10	127	Table ware, bar goods, &c.
1869	125,000	125,000	88	50	24	88	Table glass-ware.
1874	100,000	100,000	104	50	10	104	Table glass-ware.
1869	225,000	100,000	110	. . .	. . . . .	120	Table glass-ware.
1853	280,000	200,000	57	40	10	300	Flint, table, bar, and blown ware.
. . . . .	100,000	100,000	79	50	8½	79	Glass-ware and bottles.
1862	. . . .	100,000	132	48	. . . . .	. . . .	Lamp chimneys, jars, &c.
1873	*60,000	80,000	120	40	9	120	Lamp chimneys and goblets.
. . . . .	125,000	125,000	140	48	12	140	Lamp chimneys.
1866	*60,000	160,000	181	47	10	181	White.
1797 and 1851	. . . .	250,000	279	45 to 50	8 to 10	375 to 400	Window glass and druggists' bottles
1867	*40,000	120,000	59	42	8 to 10	60	Window glass.
1843	. . . .	. . . . .	350	44	9	350	Window glass and bottles.
1849	. . . .	150,000	228	40	9	228	Vials, bottles, and window glass.
1865	180,000	. . . .	141	. . .	. . . . .	175	Table glass-ware.
1872	300,000	250,000	301	51	10	301	Glass tumblers a specialty.
. . . . .	. . . .	. . . . .	227				
1843	*11,000	. . . . .	50	40	10 to 16	50	Window glass.
. . . . .	. . . .	. . .	80	50	8	80	Hollow glass-ware.
1840	180,000	90,000	168	40	8½	300	Vials and bottles.
1830	. . . . .	110,000	98	31	blowing, 8 melting, 16	98	Bottles.
1865	. .	175,000	282	52	9	. . . .	Druggists and lamp goods.
1873	†1,000	150,000	175	48	9½ to 10	175	Flint, opal, ruby, blue, and green.
1865	200,000	160,000	210	52	9	250	Lamp and glass goods.
1840	*30,000	. . . . .	50	42	8 to 12	. . . . .	Window glass.

*Boxes. †Tons.

GLASS MANUFACTORIES.—EMPLOYEES' WAGES.

NUMBER OF RETURNS.	Foremen.		Blowers.		Gatherers.		Batch mixers.		Flatteners		Cutters.		Master teazers.		Assistant teazers.		Pot makers.		Assistant pot makers		Packers.	
	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
1,	1	*$25 00		. . .	10	*$12 92	3	*$14 00	. .	. . . .	1	*$20 00	2	*$17 10	. .	. . . .	1	*$20 00	1	*$10 00	6	*$10 00
2,	1	3 50	10	$3 25	15	2 00	2	2 16	. .	. . . .	3	2 00	2	2 30	. .	. . . .	. .	. . . .	. .	. . . .	8	2 00
3,	2	3 00	15	. . . .	12	. . .	2	. .	. .	. . . .	.	. . . .	2	. .	. .	. . . .	. .	. . . .	. .	. . . .	4	
4,	2	. . . .	.	. . . .	11	1 60 to 2 50	2	2 00	. .	. . . .	2	3 00	2	2 13	. .	. . . .	. .	. . . .	. .	. . . .	5	2 00 to 4 00
5,	1	. . . .	2	§1 50 to 2 00	12	§ 87½ to 1 25	1	1 66⅔	. .	. . . .	. .	. . . .	5	2 00	. .	. . . .	. .	. . .	. .	. . . .	4	*10 00 to 11 00
6,	1	. . . .	10	3 00 to 5 00	22	1 80 to 2 00	2	1 67 to 2 00	. .	. . . .	. .	. . . .	4	2 15	. .	. . . .	1	2 50	2	1 50	11	1 80
7,	2	6 00	24	. . . .	. .	. . . .	1	2 00	. .	. . . .	. .	. . . .	1	3 00	2	$3 00	. .	. . . .	. .	. . . .	4	2 00
8,	1	5 00	36	3 66	36	2 00	2	2 50	. .	. . . .	. .	. . . .	2	2 14	. .	. . . .	. .	. . . .	. .	. . . .	3	2 50
9,	1	3 50	17	3 50	.	. . . .	2	. . .	. .	. . . .	. .	. . . .	2	. . .	. .	. . . .	. .	. . . .	. .	. . . .	4	
10,	1	. . . .	30	3 50	31	2 00	2	2 00	. .	. . . .	. .	. . . .	2	2 40	. .	. . . .	. .	. . . .	. .	. . . .	3	2 00
11,	1	3 00	45	3 50	.	. . . .	4	1 66⅔	. .	. . . .	. .	. . . .	.	. . . .	4	2 00	. .	. . . .	. .	. . . .	8	1 75
12,	5	. . . .	70	. . . .	35	. . . .	4	. . . .	21	. . . .	10	. . . .	4	. . . .	11	. . . .	1	. . . .	5	. . . .	10	
13,	2	. . . .	10	. . . .	10	. . . .	3	*11 00	3	. . . .	5	. . . .	1	†100 00	3	*11 00	1	†110 00	. .	. . . .	1	
14,	5	. . . .	78	. . . .	55	. . . .	5	. . .	7	. . .	15	.	5	. . . .	15	. . .	1	. . . .	6	. . . .	12	
15,	6	5 00	37	4 00	19	3 50	3	2 50	5	$5 50	10	4 00	3	5 00	11	2 00	1	5 00	5	1 50	14	3 50
			19	6 00																		
16,	. .	. . . .	. .	. . . .	22	. . . .	4	. . . .	. .	. . . .	. .	. . . .	. .	. . . .	4	. . . .	. .	. . . .	.	. . . .	7	
17,	1	. . . .	. .	. . . .	30	. . . .	5	1 66⅔ to 2 00	. .	. . . .	. .	. . . .	. .	. . . .	6	3 00	1	3 00	3	. . . .	18	2 00 to 3 00
18,	1	5 50	28	5 50	28	2 84	5	1 83⅓	8	5 50	13	3 00	2	3 00	11	1 83⅓	1	3 46	5	1 50	2	2 00
19,	1	2 50	8	. . . .	8	. . . .	1	. . . .	2	. . . .	4	. . . .	1	3 00	3	1 58	1	2 12	2	1 25	1	1 66⅔
20,	1	‡1 30	24	. . . .	6	. . . .	2	. . . .	. .	. . . .	. .	. . . .	1	. . .	1	. .	1	. . .	1	. . . .	5	
21,	1	3 00	45	3 00	. .	. . . .	2	2 00	.	. . .	. .	. . .	1	2 50	3	1 50	1	2 00	1	1 50	8	1 50
															1	1 75						
22,	1	1 65	24	1 65	12	1 65	2	1 65	. .	. . . .	.	. . . .	1	1 65	3	1 65	3	1 65	2	. . . .	2	
23,	1	5 00	50	2 50	. .	. . . .	2	2 00	. .	. . .	9	2 25	1	2 50	4	2 00	1	3 00	1	1 50	12	1 50
24,	2	6 00	22	2 00 to 3 00	10	1 50	3	2 00	2	1 00	6	2 25	2	2 50	. .	. . .	1	2 50	1	1 75	4	1 67
25,	3	4 00	50	3 00	25	1 25	2	1 50	. .	. . . .	. .	. . . .	2	2 50	1	2 00	1	2 50	1	1 50	7	1 75
26,	. .	. . . .	8	3 00	8	2 00	1	1 50	2	3 00	4	3 00	1	3 00	3	1 50	1	2 00	2	1 25	1	2 00

GLASS MANUFACTORIES.—EMPLOYEES' WAGES—Continued.

Number of Returns.	Boys.		Laborers.		Mould makers.		Grinders.		Pressers.		Finishers.		Engravers		Blacksmiths.		Girls.		Other employees	
	Number	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
1,	53	*$3 00 to 6 87	..	....	7	*$11 50	..	....	10	*$22 00	13	*$19 25	6	*$10 00	..	....	4 2 2	*$3 00 *3 75 *4 00	17	*$10 00 to 13 50
2,	50	60 to 1 00	6	$1 33	4	2 50	..	....	10	3 25	10	3 25	2	3 00	..	....	..	....	4	1 16⅔
3,	45	80	1	....	..	....	..	....	..	....	..	....	..	....	..	....	..	....	5	
4,	42	60 to 1 00	2	1 35	4	1 60 to 3 80	..	....	11	3 00 to 4 00	5	....	3	3 00	..	....	8	....	1 4	2 33 2 00
5,	.	....	..	....	5	2 00 to 4 00	..	....	10	$1 25 to 2 25	6	$1 25 to 1 75	2	....	..	....	..	....	61	
6,	..	....	4																	
7,	32	2 00	3	3 00	..	....	..	....	..	....	..	....	..	....	1	$2 00	..	....	9	1 50 to 3 00
8,	36	80	8	1 65	..	....	..	....	..	....	..	....	..	....	..	....	..	....	8	2 50 to 3 00
9,	80	1 50	5	....	1	....	2	....	4	....	..	....	1	....	1					
10,	61	70 to 1 00	..	....	..	....	..	....	..	....	..	....	..	....	..	....	..	....	10	2 00
11,	105	70	4	1 50	..	....	..	....	..	....	..	....	..	....	1	4 00	.	....	9	1 00 to 4 00
12,	68	....	10	....	..	....	..	....	..	....	..	....	..	....	..	....	..	....	25	
13,	1	....	15	1 50	..	....	..	....	..	....	..	....	..	....	..	....	..	....	4	
14,	50	....	12	....	..	....	..	....	..	....	..	....	..	....	..	....	..	....	84	
15,	50 10	1 00 2 00	31	1 50	..	....	..	....	..	....	..	....	..	....	..	....	..	....	4	2 50
16,	30	....	10	....	6	....	..	....	20	....	5	....	..	....	..	....	12	....	21	
17,	90	*4 00 to 7 00	26	1 50	7	2 50	..	....	30	3 25 to 4 50	30	3 25 to 4 50	..	....	1	2 50	..	....	53	1 00 to 2 50
18,	32	83⅓	36	1 25 to 1 50	..	....	..	....	..	....	..	....	..	....	..	....		....	55	1 50 to 1 83⅓
19,	1 1	40 1 00	1	1 25	..	....	..	....	..	....	..	....	.	....	1	1 00	..	....	14	1 33⅓ 2 20
20,	5	....	7	....	..	....	..	....	..	....	..	....	..	....	..	....	..	....	26	

GLASS MANUFACTORIES.—EMPLOYEES' WAGES—Continued.

Number of Returns.	Boys.		Laborers.		Mould makers.		Grinders.		Pressers.		Finishers.		Engravers		Black-smiths.		Girls.		Other employees	
	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
21,	6	$1 00	5	$1 50	. .	. . . .	. .	. . . .	. .	. . . .	. .	. . . .	. .	. . . .	1	$2 00	. .	. . . .	3	$2 00
	90	*2 50																		
22,	15	1 00	13	. . . .	. .	. . . .	. .	. . . .	. .	. . . .	. .	. . . .	. .	. . . .	. .	. . . .	. .	. . . .	19	1 50
23,	171	50	20	1 75	. .	. . . .	. .	. . . .	. .	. . . .	. .	. . . .	. .	. . . .	1	. . . .	. .	. . . .	10	
		to																		
		1 00																		
24,	78	50	8	1 50	10	$2 50	. .	. . . .	. .	. . . .	. .	. . . .	. .	. . . .	. .	. . . .	. .	. . . .	26	2 50
		to																		to
		1 25																		5 00
25,	92	50	6	1 25	. .	. . . .	. .	. . . .	. .	. . . .	. .	. . . .	. .	. . . .	. .	. . . .	. .	. . . .	20	1 50
26,	4	1 00	9	1 25	. .	. . . .	. .	. . . .	. .	. . . .	. .	. . . .	. .	. . . .	. .	. . . .	. .	. . . .	6	

* Wages paid per week. † Wages paid per month. ‡ Wages paid per mould. § Wages paid per turn.

RECAPITULATION.

The following tables and recapitulation of the foregoing, show the classification of employés, and the average daily, yearly, and weekly wages.

COUNTY.	Number of returns.	Foremen.	Blowers.	Gatherers.	Batch mixers.	Flatteners.	Cutters.	Master teazers.	Assistant teazers.	Pot makers.	Assistant pot makers.	Packers.	Boys.	Laborers.	Mould makers.	Grinders.	Pressers.	Finishers.	Engravers.	Blacksmiths.	Girls.	Other employees.
Allegheny,	16	32	403	290	43	36	46	37	50	6	19	104	713	111	27	2	65	39	14	3	28	266
Beaver,	1	1	. . .	30	5	. . .	. . .	. .	6	1	3	18	90	26	7	. . .	30	30	. .	1	. . .	53
Fayette,	2	2	36	36	6	10	17	3	14	2	7	3	34	37	. . .	. . .	. . .	. . .	. . .	1	. . .	69
Monroe,	1	1	24	6	2	. . .	. . .	1	1	1	1	5	5	7	. . .	. . .	. . .	. . .	. . .	. .	. . .	26
Philadelphia,	5	8	191	47	11	2	15	7	12	7	6	33	452	52	10	. . .	. . .	. . .	. . .	2	. . .	78
Tioga,	1	. . .	8	8	1	2	4	1	3	1	2	1	4	9	. . .	. . .	. . .	. . .	. . .	. .	. . .	6
	26	44	662	417	68	50	82	49	86	18	38	164	1,298	242	44	2	95	69	14	7	28	493

COUNTY.	AVERAGE DAILY WAGES.				Average weeks employed.	AVERAGE EARNINGS.							
						YEARLY.				WEEKLY, (52 WEEKS.)			
	Skilled.	Unskilled.	Boys.	Girls.		Skilled.	Unskilled	Boys.	Girls.	Skilled.	Unskilled	Boys.	Girls.
Allegheny,	$3 15	$1 67	$1 24	$0 56	46	$869 40	$460 92	$342 24	$154 56	$16 72	$8 86	$6 58	$2 97
Beaver,	2 77	1 78	91	. . . .	51	847 62	544 68	278 46	. . . .	16 30	10 47	5 35	
Fayette,	2 92	1 47	1 73	. . . .	40	700 80	352 80	415 20	. . . .	13 48	6 78	7 98	
Monroe,	. . . .	. . . .	. . . .	. . . .	50								
Philadelphia,	2 59	1 98	74	. . . .	45	699 30	534 60	199 80	. . . .	13 45	10 28	3 84	
Tioga,	2 82	1 30	1 66	. . . .	50	846 00	390 00	498 00	. . . .	16 27	7 50	9 58	

TEXTILE FABRICS.

Comparatively speaking, probably no special industry has grown with greater rapidity in the United States during the last fifteen years than the woolen manufacture. The best evidence of its marvelous growth, and the ability of the country to supply its home consumption, is to be found in the statement given by Doctor Hays, Secretary of the National Association of Woolen Manufacturers at their annual meeting held at Philadelphia in November, 1879.

"In 1860 we imported in manufactures of wool a value of $37,937, 190. In 1878, with a population increased at the lowest estimate, not less than twelve millions, we imported a value of $25,230,150, a decline owing, in part, to commercial inactivity; but mainly to our increased capacity to supply our own consumption. The diminished importations in certain classes, even in later periods, is remarkable. Even so late as 1872, the value of our importation of carpets was nearly six millions dollars, ($5,727,183.) In 1878 the value of the importation was but $398,389."

The principal importation to this country at present, is in the line of dress goods, of superior quality, which is chiefly consumed by the wealthier portion of our communities; but even this is destined to speedily meet with successful competition, through the spirited and progressive march of American manufacture, as is indicated by the same authority in the statement that "during last year (1878) the importations were valued at $12,000,000, a decrease since 1872 of $8,000,000.

Thomas Dolan, Esquire, one of the leading woolen and worsted manufacturers of Philadelphia, in an address delivered before the convention, estimated the entire woolen industry of the United States for the year 1879 at $293,000,000, distributed as follows: In the New England States "about $145,000,000; central States, $100,000,000; western States, $36,000,000; southern States, $9,000,000; Pacific States, $3,000,000."

The rapid increased consumption of wool has greatly stimulated the wool growing interest, and caused special attention to be given to the necessity of continued improvement in the breeding and raising of sheep. The estimated number of sheep in the United States in 1879 is a little over 37,000,000, yielding, as estimated, 215,000,000 pounds of wool, from which is expected over 120,000,000 pounds of scoured wool. The importations of foreign wool in 1878, was 48,500,000 pounds, and in 1879 it is estimated that the imports will reach 50,000,000 pounds, which, added to the domestic product, gives a grand total of 265,000,000 pounds, which will net nearly 154,000,000 pounds of clean product.

In the manufacture of textile fabrics, Philadelphia, in this country, if not in the world, stands preëminent. When it can confidently be stated that within the memory of many now living, "that $500 would buy all the wool sent to the city, and that now a single house, Messrs. John and James Dobson consume in their own manufacture 30,000 pounds of wool every working day, (at five pounds per fleece, the fleeces of 6,000 sheep per day, or of 1,800,000 sheep in a year,") some idea can be formed of the matchless progressive growth of this great city. There is scarcely a branch connected with this manufacture that it does not operate in, and it is greatly to be regretted that the Bureau has not had the facilities to properly gather full statistics, and thus show the growth and progress, not only in this particular, but in many others. It is claimed, and we believe substantiated, that more workingmen own their own homes in the city of Philadelphia, than in any city in the world. James Dobson, Esquire, in a speech delivered at a banquet given by the association, November 12, 1879, in regard to Philadelphia, said: "We here to-night represent industry centered in this city of nearly sixty millions of dollars, giving employment to tens of thousands of work people, and, I am happy to say, that I know of neither a spindle or a loom that is now standing for work.

Why, sir, it takes to keep these machines in operation more than seventy-five million pounds of raw wool annually. Philadelphia is to-day the largest wool manufacturing city in the world, and the products of her looms have now a reputation that we all should feel a deep interest in.

There is manufactured in this city every grade of carpets, from the finest to the commonest quality. There is to-day, in the United States, scarcely anything sold but American carpets. Five years ago, the leading carpet dealers in the country scouted the idea of selling domestic Brussels carpets; and, gentlemen, nine tenths of all the goods of this description manufactured in this country were sold as foreign goods. Why is this changed? Simply because of the excellence of American manufactures and a protective tariff. Without the latter, many of the mills that now employ thousands of work people would never have had an existence.

In 1872, about five and a half million yards of carpets were imported into this country; in 1878, only 270,000 yards. We are making, to-day, six million more yards of carpets than we were in 1872, and of a quality equal, if not superior, to any foreign carpets.

It has often been asserted that, here in this city, more yards of carpet were manufactured than in the whole of Great Britain. According to the latest statistics before us, we are now manufacturing fully twenty million yards of all kinds of carpets annually. The latest published statistics of the exports of the United Kingdom, for the year 1878, are six million seven hundred and fifty thousand yards. Allowing the same quantity for their own home consumption, it gave Great Britain a producing capacity, in 1878, of 13,500,000 yards, while this quiet city of Brotherly Love has an annual production of 20,000,000. The eastern States will swell the total to

30,000,000 annually, showing that we manufacture and sell more than twice as many yards of carpets as the whole United Kingdom manufactured and sold in 1878. While these statements might appear incredible, they are, nevertheless, facts compiled from official documents.

England, with a population of 30,000,000 of people, and her dependencies, on which the sun never sets, with 400,000,000 more, cannot, nor do they, consume one half the quantity of carpets we do, with a population scarcely one tenth in number. Why is this? The workingmen, who are the sinew and bone of a country, from whom all prosperity comes, are in such a deplorable condition that they cannot even get the necessaries of life, much less a carpet.

Now, gentlemen, this branch of our industry is only an illustration showing what is and has taken place in other branches of the woolen industry of this country. There was not imported, last year, a single bale of blankets for household purposes, they are all made here. Why, the imports of worsted stuffs and dress goods are decreasing at the rate of two millions of dollars annually, they being supplanted mostly with the products of the looms of this city. Now, we follow the list of the manufacture of wool, and the ratio is about the same."

At the request of Messrs. Dolan, Fiss, and James Dobson, Hon. Lorin Blodgett undertook, during the close of the year, the preparation of a classified list of those engaged in the manufacture of "textile fabrics" in the city of Philadelphia, and its immediate vicinity. From an advanced sheet received by the Bureau, through the kindness of Mr. Dobson, the following summary is given by Mr. Blodgett:

"The city of Philadelphia covers an area of one hundred and thirty-nine square miles, and is constituted of a group of cities, in fact, in which the municipalities and manufacturing suburbs of Kensington, Richmond, Frankford, Germantown, Manayunk, Falls of Schuylkill, Spring Garden, and Fairmount are the principal on the north; with Hestonville, Haddington, and Darby on the west; and Moyamensing, Southwark, and others on the south; all these now being parts of the consolidated city. This is exclusive of several large manufacturing towns lying just beyond the present municipal boundaries, but as intimately connected with the business of the city as if within its limits. In Kensington alone, there is a population of not less than two hundred thousand directly engaged in, and supported by, textile manufactures; and in Germantown and Manayunk, each about forty thousand, although all these are now merged in the city, and not separated by distinguishable boundaries. The rapid growth of these industries may be indicated by the accompanying list of fifty-two new mills erected during the year 1879, in Kensington and vicinity alone, all of them large structures, and immediately occupied.

The general list of establishments is necessarily embodied under the title of "*Power Mills and Machinery on Textile Fabrics*," embracing steam classes of these fabrics, except carpet and hosiery mills, in which no steam

power is used, and under this there are the distinctive classes of wool spinning, cotton spinning, worsted yarn spinning-mills, carpet-mills, hosiery and knit-goods mills, silk and silk mixed goods, flax and jute manufacturers, print works, and dyers and finishers, which have been separately prepared. Of these, the wool and cotton spinners can only be partially separated; and generally for woven goods the largest production is of mixed fabrics, the work of a large number of mills changing from one material to another with the season. I do not now attempt to make the whole number of these distinctions, yet the footings of the general table sufficiently distinguish the number of sets of wool cards and the number of wool and cotton spindles. These spindles represent but a part of the raw material consumed here, more than half of the cotton yarns consumed being brought from other localities, and chiefly from the southern States. A large amount of wool yarns, also, is brought from the adjacent counties of Pennsylvania.

No mere estimate of mills, machinery, or production could safely be made for an interest so large as this, and any actual enumeration necessarily involved enormous labor. It could only be accomplished through the cordial and active coöperation of the leading proprietors, and the active aid of other large business interests connected with them generally. This aid has been given generously, not only by the manufacturers themselves, but by the wool trade, and the chief distributing houses in the dry good's trade.

The products of these domestic textile industries, of course including those of other States in this account, now constitute nine tenths of the volume of the entire trade in textile fabrics—cloths, blankets, cotton goods, carpets, hosiery, etc., of the entire country, and they predominate almost as largely in the business of the city of New York as they do in that of Philadelphia.

The summaries of results are the last to be reached in a work like this, necessarily subject to revision and correction down to the last moment; but after a thorough original canvass by capable assistants, every part of which has been personally reviewed, even to the extent of personally visiting three fourths of the entire number of mills, I may assume reasonable accuracy for the following results:

1. Carpet mills—223 in number, with 5310 looms, producing an average of 500 yards monthly for each of 3920 hand looms on ingrains, and 251 hand looms on Axminster and Turkish; and 750 yards per month for each of 814 power looms on ingrains, and 325 power looms on Brussels and tapestry; together, 33,568,000 yards.

2. Hosiery and knit-goods mills—148 in number, with 8911 power knitting heads or frames, (98 employing steam of 2435 horse-power,) and producing 262,480 dozens of hosiery weekly, and 30,000 dozens of wool knit goods, scarfs, shawls, cardigans, etc., calculated to be equal, (at 1 of knit goods to 6 of hosiery proper,) to 22,124,000 dozens for the year.

3. Worsted-yarn mills—23 in number, with 119 combs, 62,408 worsted

spinning spindles, producing an aggregate of 9,800,000 pounds of worsted yarns, mostly of fine numbers, for the year 1879.

4. Silk and silk mixed goods—19 mills, with 1096 looms, 7200 silk spindles; 661 horse-power steam, and a production valued at $6,500,000 for the current year.

The remaining classes are, for the present, left as merged in the general table of *Power Mills on Textile Fabrics*, which excludes only the carpet and hosiery mills not spinning or weaving by power, about 220 in all. I will separate these more definitely in the detailed general report. The footings of the general table are:

Number of proprietors,			487
Number of distinct mills,			575
Sets of wool cards,	764	Number of wool spindles,	306,325
Worsted combs,	119	Worsted spinning spindles,	62,408
Sets of cotton cards,	723	Number of cotton spindles,	151,670
Power looms on yard goods,			29,874
Power frames, etc., on hosiery,			8,911
Number of steam-engines,	432	Horse-power,	31,621
Number of water-wheels,	22	Horse-power,	1,800

The entire number of mills or establishments requiring to be separately distinguished is 849, and the number of persons employed at wages exceeds 100,000; but an exact account has not been attempted. The hosiery, carpet, and worsted yarn products are estimated by the leading proprietors of each class to have doubled their production since 1872, and the lowest estimate applied to the actual values for 1879 is, for woolens and cottons of the general table, $52,000,000; carpets, $15,000,000; hosiery and knit goods, $15,000,000; worsted yarns, $8,500,000; silk and silk mixed goods, $4,500,000; total, $75,000,000. For the current year the production will exceed these values more than 20 *per centum* in each case."

The following, relating to textile manufacture in Montgomery county, is taken from the *Philadelphia Inquirer* of December 30, 1879:

"There are many cotton and woolen factories in Montgomery county, especially those in Norristown and Bridgeport, which deserve a mention such as they have hitherto failed to receive from Philadelphia journals. One of these, the Wyoming mill, in Norristown, which weaves print cloths, contains 230 looms, 36 cards, each 36 inches width, 4 fly frames of 144 spindles each, 36 spinning frames of 130 spindles each, and 4 pairs of mules of 1,200 spindles per pair. This mill is driven by two Leffell water-wheels, under 8 feet fall, the combined horse-power of which is 212. The proprietors are William Simpson, Thomas Simpson, William Simpson, junior. The superintendent is B. W. Dean.

The Washington woolen mills, on the east bank of the Schuylkill, one mile above Norristown, is owned by Mr. William Watt. It is propelled by one 55-horse-power engine, and contains 5 sets of woolen cards; the cards being fed by the Apperly feeder. There are 1,632 mule spindles and

90 looms. The old buildings have been transformed into a new and well-arranged structure, which is well filled with the products of the mill. The sales of the products of the mill are conducted by Mr. Watt, without the intervention of commission merchants.

The Good Intent mills, owned by Thomas Liversidge, turns out Kentucky jeans. It has 60 narrow looms, 4 sets of woolen cards, 4 mules of of 1,260 spindles altogether, and is run by a steam engine of 50 horse-power. The Blue mill, of Norristown, J. & J. Shaw & Co., proprietors, manufacture plain and fancy Kentucky jeans. It is situated in the northern suburb of Norristown. The Trooper factory, some distance above the mill, is owned by the same firm. Together they contain 7 sets of woolen cards and 2,700 mule spindles. There are 62 looms at the Trooper mill and 82 at the Blue mill.

The Ford Street mill, Norristown, of which J. Clarence Cresson & Co. are proprietors and John McArthur superintendent, has 42 looms, and is run by a 70 horse-power engine. There are 2 sets of wool cards, 2 mules, the total number of spindles in which is 720, and 5 cotton cards, with 1,368 spindles. The total out-put of this mill is 250,000 yards per annum.

The Norristown woolen mill, George & James Bullock, proprietors, manufacture doeskins, beavers, and black union coatings. It has a 60 horse-power engine, 2 sets of 60-inch wide carding machines, furnished with self-feeders; 2 self-acting mules, having altogether 960 spindles and 28 broad looms.

The Minerva mills, of Bridgeport, are among the most important of Montgomery county factories. James Lees & Sons are the proprietors. They were built and operated by Needles & Co., and they afterwards passed into the hands of Paul Thurlow and Christopher Blount. They were destroyed by fire in 1863, at a time when the machines were engaged in making army clothing. The present proprietors purchased the property after this, and rebuilt and enlarged the mills to their present proportions.

The main building is four stories in height, with annexes, and is measured in length by 60 windows. The machinery is run by a 300 horse-power engine. There are 210 narrow looms and 26 broad looms; 16 sets of woolen cards, 12 of which are 48 inches wide and 4 are 60 inches; 3 sets of worsted machinery, with 3,000 spindles and 4,062 wool spindles. The number of yards of Kentucky jeans turned out weekly is 30,000; blankets, 6,000 pounds; carpet yarn, all-wool filling, 19,000 pounds; carpet yarn, worsted warp, 11,000 pounds.

Ridgeway's woolen-yarn mill, at Bridgeport, contains 3 sets of woolen cards and 2 mules of 420 spindles each. The Sterling mills, at the same place, owned by Messrs. Worrall & Radcliffe, produce 12,000 yards of Kentucky jeans weekly. An engine of 45 horse-power propels the machinery, which consists of 3 sets of woolen cards, each 48 inches wide, 56 looms, and 3 hand mules, with a total of 1,060 spindles."

CARPETS.

Four returns received.

No. 1. Robert Carson, Philadelphia. Erected in 1872. Three stories high and basement. Means of escape in case of fire is supposed to be ample. Employ sixty-five persons. Amount paid annually for wages of employés, $30,000. Amount paid for materials used in business, $85,000. Value of annual product, $120,000. Product, carpets.

No. 2. Boggs & White, Philadelphia. Erected in 1871. Brick building seventy-two feet front by thirty-five deep. Four stories high, with ample means of escape in case of fire. Employ one hundred and sixty-five persons. Amount paid annually for wages of employés, $70,000. Amount paid for material used in business, $130,000. Value of annual product, $200,000. Product, ingrain carpets.

3. John Bromley & Sons, Philadelphia. Building, four stories and basement. Stair cases both ends of mill. Employ about five hundred persons. Annual wages paid employés about $180,000. Value of annual product about $750,000. Product, Wilton body Brussels and ingrain carpets; also, whole Smyrna carpets and rugs and mats of various kinds.

No. 4. Samson McDowell, Philadelphia. Building, three stories. Means of escape in case of fire ample. Employ sixty-seven persons. Annual wages paid employés about $21,871 44. Value of annual product about $100,000. Product, ingrain carpets, entirely hand-loom production, but about to introduce steam power.

The following table shows the number of persons employed, and the weekly wages paid, &c:

Number of return.	Hours worked per day.	Weeks in operation during the year.	Number of—			Weekly Wages of—			
			Men.	Women.	Youth.	Men.	Women.	Youth.	
1	10	50	50	8	7	$11 00	$5 00	$3 50	
2	10	48½	120	40	5	9 60	1 80	1 08	
3	10	52	350	100	50	Piece work.	6 00	3 25	
4	12	52	57	10	. . .	. . . . .	. . .	. . .	Wages not given.
Total, ...			577	158	62				

At a meeting of manufacturers and weavers, held in Philadelphia December 9, 1879, the following scale of prices was agreed upon, to continue in force until June 9, 1880, between the parties whose signature is attached:

From December 9, 1879, until March 9, 1880.

Clear of Winding.	*Not Clear of Winding.*
Extra sup., 13 pairs, 14½, 15, and 15½ cents.	Extra sup., 13 pairs, 15½, 16, and 16½ cents.
Extra sup., 12½ pairs, 13½, 14, and 14½ cents.	Extra sup., 12½ pairs, 14½, 15, and 15½ cents.
12 pairs fine, ... 13½ and 14 cents.	12 pairs fine, ... 14½ and 15 cents.
11 pairs fine, ... 12 and 12½ cents.	11 pairs fine, ... 13 and 13½ cents.
10 pairs fine, ... 10½ and 11 cents.	10 pairs fine, ... 11½ and 12 cents.
9 pairs fine, ... 9½ and 10 cents.	9 pairs fine, ... 10½ and 11 cents.
8½ pairs fine, ... 9 and 9½ cents.	8½ pairs fine, ... 10 and 10½ cents.
8 pairs fine, ... 8½ and 9 cents.	8 pairs fine, ... 9½ and 10 cents.
7½ pairs fine, ... 8 and 8½ cents.	7½ pairs fine, ... 9 and 9½ cents.
7 pairs fine, ... 7½ cents.	7 pairs fine, ... 8½ cents.
6 pairs fine, ... 6½ cents.	6 pairs fine, ... 7½ cents.

From March 9, 1880, until June 9, 1880.

Clear of Winding.	*Not Clear of Winding.*
Extra sup., 13 pairs, 15, 15½, and 16 cents.	Extra sup., 13 pairs, 16, 16½, and 17 cents.
Extra sup., 12½ pairs, 14, 14½, and 15 cents.	Extra sup., 12½ pairs, 15, 15½, and 16 cents.
12 pairs fine, ... 14 and 14½ cents.	12 pairs fine, ... 15 and 15½ cents.
11 pairs fine, ... 12½ and 13 cents.	11 pairs fine, ... 13½ and 14 cents.
10 pairs fine, ... 11 and 11½ cents.	10 pairs fine, ... 12 and 12½ cents.
9 pairs fine, ... 10 and 10½ cents.	9 pairs fine, ... 11 and 11½ cents.
8½ pairs fine, ... 9½ and 10 cents.	8½ pairs fine, ... 10½ and 11 cents.
8 pairs fine, ... 9 and 9½ cents.	8 pairs fine, ... 10 and 10½ cents.
7½ pairs fine, ... 8½ and 9 cents.	7½ pairs fine, ... 9½ and 10 cents.
7 pairs fine, ... 8 cents.	7 pairs fine, ... 9 cents.
6 pairs fine, ... 7 cents.	6 pairs fine, ... 8 cents.

Committee of Manufacturers:

James Judge, A. S. Jennings,
Francis Magee, James Martin,
John Hamilton, William Lockhart,
James Bole, William Erkskine,
James Stinson.

Committee of Weavers:

William Agnew, Henry Huser,
William Fairman, William Biggerstaff,
John H. Berge, Robert Elliott,
Robert Nicholl, William Ritchie,
John Wilson.

The following manufacturers have signified their willingness to pay the above scale of prices:

Samuel Burnett,
Robert Carson,
Boggs & White,
John Boggs,
Stewart Brothers,
Robert Huston,
James McCracken,
James Doak,
Thomas Devlin,
John Shegog,
Robert Anderson,
Erhard Biswanger,
Davis & Rath,
W. & J. McHatton,
Thomas Caves,
James Gilmore,
Samuel Keightly,
Henry Dickel,
Robert Galbraith,
James Galbraith,
Josiah Galbraith,
Thomas Galbraith,
A. Holmes,
Patton & Krisher,
George Treude,
Jaeob Schuhmaehr,
W. J. Cunningham & Son,
James McDade & Son,
David McCracken,
Edward C. Read,
R. Alexander & Son,
Samson McDowell,
Charles Boylen,
Moore & Brother.

SILK.

No. 1, Sanquoit Silk Manufacturing Company, Scranton, Lackawanna county, established in 1870. Have been in operation only since June, 1879, by present owners and management. Employ, of an average, one hundred and fifty persons. Product, silk for weaving purposes.

No. 2, Aub. Hackenburg & Co., Philadelphia, established in 1863. Building, four stories high, with outside fire escapes. Employ fifty-six persons. Amount paid for wages of employés, $14,000. Amount paid for material used in business, $100,000. Value of annual product, $150,000. Product, silk threads, (sewing and machine silks.)

Number of Returns.	Hours worked per day.	Days in operation during the year.	Number of Employees.			Average Daily Wages.		
			Men.	Women.	Youth.	Men.	Women.	Youth.
1,	10	. . .	4	. . .	146	$2 50	. . . .	$0 35
2,	10	300	6	46	4	2 00	$0 87½	70

MANUFACTURES

Number of returns.	NAME OF MILL.	BY WHOM OPERATED.	COUNTY.
1	M. B. & J. H. Fullerton,	M. B. & J. H. Fullerton,	Armstrong,
2	Graff & Firth,	Graff & Firth,	do.
3	S. T. Cooper,	S. T. Cooper,	do.
4	William Gillis,	William Gillis,	do.
5	Thomas Clarkson,	Thomas Clarkson,	Beaver,
6	Waterside Woolen Factory,	J. S. Noble & Brother,	Bedford,
7	A. J. Brumbaeh,	A. J. Brumbaeh,	Berks,
8	J. G. Leinbaeh & Co.,	J. G. Leinbaeh & Co.,	do.
9	Isaae W. Smith,	Isaae W. Smith,	Chester,
10	J. T. Rieh & Sons,	J. T. Rich & Sons,	Clinton,
11	F. M. Welsh & Co.,	F. M. Welsh & Co.,	do.
12	S. & P. Eves.	S. & P. Eves,	Columbia,
13	Harvey Lamb,	Harvey Lamb,	Crawford,
14	John Maxson,	John Maxson,	Delaware,
15	J. Ledward & Son,	J. Ledward & Son,	do.
16	Edgmont Factory,	James M. Stotesbury,	do.
17	Todmorden Woolen-Mills,	Samuel Baneroft,	do.
18	Verlenden Bros.,	Verlenden Bros.,	do.
19	Shaw, Esrey & Co., Limited,	Shaw, Esrey & Co., Limited,	do.
20	Girard Wool-Mills,	Thomas Thornton,	Erie,
21	I. B. White,	I. B. White,	Franklin,
22	Chambersburg Woolen Company,	Chambersburg Woolen Company,	do.
23	Webster Mills,	Benjamin Fisher,	Fulton,
24	M. G. Keatley,	M. G. Keatley,	Huntingdon,
25	Jasper Shoemaker,	Jasper Shoemaker,	Laekawanna,
26	Youngman, Caswell & Co.,	Youngman, Caswell & Co.,	Lycoming,
27	John Wilson & Co.,	John Wilson & Co.,	Mifflin,
28	William Wallaee,	William Wallace,	Monroe,
29	William Watt,	William Watt,	Montgomery,
30	Seth Humphreys,	Seth Humphreys,	do.
31	Conyers, Button & Co.,	Conyers, Button & Co.,	Philadelphia,
32	Aaron Jones' Sons,	Aaron Jones' Sons,	do.
33	Bardsley & Craven,	Bardsley & Craven,	do.
34	D. Crowther & Son,	D. Crowther & Son,	do.
35	David Hey,	David Hey,	do.
36	Thomas Mottram,	Thomas Mottram,	do.
37	Continental Worsted-Mills,	George Campbell,	do.
38	Manayunk,		do.
39	Manayunk,		do.
40	J. S. Ingham & Co.,	J. S. Ingham & Co.,	Tioga,
41	M. Halfpenny & Co.,	M. Halfpenny & Co.,	Union,

—WOOLEN.

In what year erected.	Whole number of persons employed.	Amount of capital employed in business.	Amount paid annually for wages of employees.	Amount paid for material used in business.	Value of annual product.	Kind of goods manufactured.
1865	21	$5,000 00	$3,000 00	$1,875 00	. . . . .	Barred and plain flannel, and knitting yarns.
1865	76	*50,000 00 †30,000 00	20,000 00	70,000 00	. . . . .	Woolen goods—*i. e.* flannels, blankets, yarns, and cassimere.
1862	8	4,000 00	500 00	1,000 00	$1,600 00	Woolen yarn.
1841	2	. . . . .	237 52	. . . . .	. . . . .	Blankets, and stocking yarn.
1877	11	5,000 00 to 6,000 00	2.775 00	. . . . .	. . . . .	Blankets.
1867	12	14,000 00	3,840 00	7,000 00	13,000 00	Cassimeres, flannels, satinets, blankets, carpets, and yarns.
1865	33	40,000 00	7,723 24	52,227 00	67,000 00	Cassimeres.
1859 1875	41	40,000 00	12,000 00	. . . . .	. . . . .	Jeans, cottonades, cotton laps, and flannels.
. . .	58	45,000 00	26,000 00	. . . . .	. . . . .	Kentucky jeans, doeskins, and tweeds.
1845	14	12,440 40	1,000 00 to 1,200 00	5,000 00 to10,000 00	. . . . .	Flannels, yarn, and blankets.
1864	7	. . . . .	. . . . .	. . . . .	. . . . .	Blanket, flannel, satinet, wool jean, and stocking yarn.
. . .	10	1,500 00	$300 to $500	2,000 00	. . . . .	Yarns, blankets, &c.
1862	4	15,000 00	$700 00	. . . . .	. . . . .	Yarns and flannels, and some cassimeres.
1854	50	30,000 00	17,000 00	36,000 00	40,000 00	Jeans, cottonades, kerseys, and cassimeres.
1867	124	100,000 00	40,000 00	80,000 00	120,000 00	Doeskins, jeans, and mixed goods.
1873	40	60,000 00	15,000 00	. . . . .	125,000 00	Cotton yarn.
. .	102	200,000 00	. . . . .	. . . . .	170,000 00	Beaver cloth.
1859	48	30,000 00	16,100 00	. . . . .	81,000 00	Kentucky jeans.
. . .	278	300,000 00	89,154 56	291,700 00	. . . . .	Wools, cottons, warps, &c.
. . .	7	5,000 00	1,000 00	. . . . .	. . . . .	Cassimeres, tweeds, flannels, yarns, leggings, socks, &c.
1847	12	12,000 00	3,000 00	6,000 00	. . . . .	Jeans, satinets, blankets, carpet and stocking yarn.
1866	82	90,500 00	31,597 00	107,481 00	175,000 00	Woolen.
1855	13	6,000 00	500 00	1,000 00	1,500 00	Carpets, satinets, flannels, stocking yarn, blankets, &c.
. . .	9	6,000 00	2,000 00	3,000 00	3,600 00	Blankets, flannels, tweed, cassimeres, yarns, and carpets.
1840	11	5,000 00	. . . . .	. . . . .	. . . .	Tweeds, flannels, stockings, yarns, &c.
1868	43	60,000 00	12,000 00	80,000 00	120,000 00	Cassimeres, blankets, yarns.
1864	13	12,000 00	3,500 00	. . . . .	9,000 00	Cassimeres, flannels, blankets.
1865	72	20,000 00	10,000 00	60,000 00	80,000 00	Cassimeres.
. .	86	50,000 00	20,800 00	. . . . .	. . . .	Jeans and fancy cassimeres.
1877	32	25,000 00	10,262 40	55,800 00	76,440 40	Carpet yarn.
1830	441	500,000 00	100,000 00	. . . . .	500,000 00	Fancy knit woolen and hosiery.
1840	150	100,000 00	60,000 00	100,000 00	250,000 00	Hosiery and machine knit goods.
1870	226	100,000 00	50,000 00	150,000 00	230,000 00	Worsted and cotton dress goods.
1874	29	10,000 00	8,000 00	. . . . .	. . . . .	Woolen and cotton yarn.
1870	37	20,000 00	12,000 00	40,000 00	70,000 00	Carpet yarn.
1865	33	10,000 00	. . . . .	. . . . .	. . . .	Knit jackets.
1862	378	500,000 00	110,000 00	. . . . .	800,000 00	Fine worsted yarn.
1872	53	55,000 00	9,500 00	. . . . .	110,000 00	Worsted yarns.
1842	32	70,000 00	11,500 00	. . . . .	130,000 00	Woolen yarns.
1848	6	1,000 00 1,500 00	500 00	1,500 00	. . . . .	Cassimeres, doeskins, yarns, and flannel.
1878	43	62,000 00	11,005 09	41,998 93	76,544 00	All wool cassimeres.

* Running. † Building and machinery.

WOOLEN MANUFACTURES.—

No. of returns.	Hours worked per day.	Weeks in operation during the year.	Wool sorters.		Wool washers.		Dyers.		Foremen and overs'rs.		Pickers.		Carders.		Spinners		Warpers and beamers.		Reelers.	
			Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
1	. .	. . .	1	$1 50	1	$1 25	1	$2 00	1	$2 00	. .	. . .	. .	. . .	2	$1 50	1	*$1 00	. .	. . .
									2	3 50										
2	10	52	2	1 37½	2	1 37½	2	1 37½	5	1 37½	1	1 37½	1	1 37½	1	1 37½	2	1 37½	5	1 37½
3	10	13	1	. .	. .	. . .	. .	.	1	1 50	. .	. .	. .	. . .	1	1 00	.	. . . .	. .	. . .
4	10	26	. .	. . .	. .	. . .	. .	. . . .	. .	. . . .	. .	. . .	. .	. . .	1	. .	. .	. . . .	. .	. . .
5	10	51	. .	. . .	1	1 25 to 2 00	. .	. .	1	. . .	1	1 25 to 2 00	. .	. . .	1	1 25 to 2 00	. .	. . . .	. .	. . .
6	. .	43	1	1 50	. .	. . .	1	1 50	1	2 50	. .	. . .	1	1 00	1	1 35	. .	. . . .	1	55
7	10	49	. .	. .	.	. .	1	1 25	2	2 00	. .	. . .	. .	. . .	2	1 60	2	1 13	. .	. . .
8	. .	. . .		. . .		. . .	1		3	.	2	. .	8		4	. . .	1	. . . .	1	. . .
9	10	50	1	1 50	1	1 50	1	2 00	1	3 00	1	1 25	2	1 40	4	1 75	2	2 00	. .	. . .
													1	2 75						
10	10	39	1	. . .	. .	. . . .	. .	. . .	. .	. .	1	30	1	75	1	1 30	. .	. . . .	. .	. . .
11	10	. . .	. .	. . .	. .	. . .	1	1 00	.	. . .	. .	. . .	1	75	1	1 00	. .	. . . .	.	. . .
12	11	25	1	. . .	1	. . .	1	. . .	. .	. . .	. .	. . .		. . .	1	. . .		. . . .	. .	. . .
13	. .	. . .	1	. . .	. .	. . .	. .	. . .	. .	. . .	. .	. . .	. .	. . .	. .	. . .	. .	. . . .	. .	. . .
14	. .	52	. .	. . .	. .	. . .	1	2 00	2	2 50	1	1 00	. .	. . .	1	2 00	1	2 00	. .	. . .
							1	1 25												
15	10	45	. .	. . .	. .	. . .	1	2 00	. .	. . .	2	. . .	1	3 75	2	3 00	1	2 00	. .	. . .
							4	1 33⅓									2	1 25		
16	. .	. . .	. .	. . .	. .	. . .	. .	. .	2	. . .	2	. .	3	. . .	25	. . .	2	. . . .	5	. . .
17	10	51	. .	. . .	1	1 20	4	1 20	1	1 65	1	1 20	1	3 33	6	2 00	2	1 70	2	75
									3	1 77										
									1	3 10										
									1	3 50										
									1	8 33										
18	10	51	. .	. . .	. .	. . .	2	1 50	1	2 00	. .	. . .	. .	. . .	3	2 00	1	1 50	. .	. . .
									1	2 25										
19	. .	50	. .	. . .	1	1 33⅓	7	1 50	2	. . .	4	1 50	3	3 00	9	2 25	. .	. . . .	. .	. . .
									3	2 15										
									4	2 29										
									5	2 75										
20	11	34	.	. . .	1	1 50	. .	. . .	. .	. . .	. .	. . .	1	1 00	1	1 00	. .	. . . .	. .	. . .
21	10	45	1	1 00	1	1 00	1	1 00	1	. . .	. .	. . .	. .	. . .	1	1 00	. .	. . . .	1	1 00
22	11	50	2	1 70	1	1 25	4	1 25	1	2 50	2	1 25	2	1 25	6	1 90	1	2 50	. .	. . .
									2	2 64										
									1	3 50										
23	12	33	1	1 00	1	1 00	1	1 00	1	. . .	1	1 00	2	1 00	1	1 00	1	1 00	. .	. . .
24	. .	. . .	1	1 25	. .	. . .	1	1 25	. .	. . .	. .	. . .	1	. . .	1	. . .	1	. . . .	. .	. . .
25	11½	41	1	. . .	. .	. . .	. .	. . .	3	. . .	1	. . .	. .	. . .	1	. . .	. .	. . . .	. .	. . .
26	11	51	1	80	1	80	. .	. . .	3	2 50	. .	. . .		. . .	. .	. . .	1	1 00	. .	. . .
									3	2 75										
27	10	41	1	1 50	. .	. . .	1	1 50	1	1 50	. .	. . .	2	. . .	2	. . .	1	. . .	. .	. . .
28	11	41	1	1 50	1	1 00	1	1 00	1	1 25	. .	. . .	3	. . .	4	. . .	2	. . . .	. .	. . .
									1	2 00										
									1	3 00										
									1											
29	. .	. . .	. .	. . .	. .	. . .	2	2 00	1	. . .	1	80	1	2 50	1	2 00	1	1 50	. .	. . .
30	10	51	. .	.	. .	. . .	. .	. .		. .	. .	. . .	. .	. . .	. .	. .	. .	. . . .	. .	. . .
31	10	50	2	2 00	2	1 25	25	1 50	12	2 00	. .	. . .	1	4 00	1	3 00	5	2 00	3	1 50
									1	2 50										
									1	3 50										
									3	5 00										
32	10	50	1	. . .	1	. . .	1	. . .	5	3 00	1	. . .	1	. . .	2	. . .	3	. . . .	. .	. . .
33	10	51	4	2 50	1	1 75	5	1 25	6	4 00	. .	. . .	. .	. . .	. .	. . .	6	2 00	. .	. . .

EMPLOYEES' WAGES.

Fullers.		Finishers.		Weavers		Burlers.		Engineers		Mechanics		Laborers		Women.		Boys.		Other employees.	
Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
. .	. . .	. .	. . .	. .	. . .	. .	. . .	1	$1 75	. .	. . . .	. .	. . .	5	75	1	37½	1	$1 25
																4	50		
. .	. . .	. .	. . .	12	$1 37½	2	$1 37½	1	1 37½	1	$1 37½	7	$1 37½	20	1 00	6	70	6	1 37½
. .	. . .	. .	. . .	. .	. . .		. .	1	. . . .	. .	. . . .	. .	. . .	1	1 00	2	50		
														1	1 25				
. .	. . .	. .	. . .	. .	. . .	. .	. . .	. .	. . . .	. .	. . . .	. .		1					
. .	. . .	. .	. . .	. .	. . .	. .	. . .	. .	. . . .	. .	. . .	. .	. . .	7	50				
. .	. . .	1	1 20	2	1 35	. .	. . .	. .	. . . .	. .	. . .	. .	. . .	1	90		. . .	2	1 15
1	1 10	1	1 80	2	. . .	. .	. . .	1	1 25	1	1 25	. .	. . .	2	30	2	50	1	1 17
														9	. . .	5	35	1	1 00
. .	. . .	. .		17	. .	2	. .	1	. . . .	. .	. . . .	1							
. .	. . .	1	2 00	6	80	1	60	. .	. . . .	. .	. . . .	. .	. . .	36	80				
					to										to				
					1 00										1 00				
. .	. . .	. .	. . .	2	1 30	. .	. . .	. .	. . . .	. .	. . . .	8							
. .	. . .	. .	. . .	. .	. . .	. .	. . .	. .	. . . .	. .	. . . .	. .	. . .	3	. . .	. .	. .	1	
. .	. . .	. .	. . .	. .	. . .	. .	. . .	. .	. . . .	. .	. . . .	. .	. . .	2	. .	4			
. .	. . .	. .	. . .	. .	. . .	. .	. . .	. .	. . . .	. .	. . . .	. .	. . .	. .	. . .	3			
1	1 50	1	1 62	. .	. . .	. .	. . .	1	1 67	. .	. . . .	1	1 00	25	1 25	3	83		
														3	67	1	68		
																7	50		
2	1 50	1	2 00	. .	. .	. .	. . .	1	3 00	.	. . . .	5	1 25	76	1 10	10	58½	2	1 25
														3	70	5	83⅓	2	2 50
																2	75		
																2	1 00		
. .	. . .	. .	. .	. .	. . .	. .	. . .	1											
1	1 70	1	1 20	14	1 00	4	75	1	1 28	2	2 10	2	1 50	21	1 00	11	40	1	1 35
																1	85	1	1 50
																2	1 00	13	1 70
																3	1 20		
. .	. . .	. .	. . .	. .	. . .	. .	. .	1	1 50	. .	. . . .	2	1 25	24	1 00	4	66	1	1 08
																2	83	17	1 00
																2	90	1	1 33⅓
																4	1 00		
1	2 00	. .	. . .	20	1 20	. .	. . .	3	2 34	1	. . . .	2	1 50	74	1 10	4	50	4	2 15
																16	58½		
																34	67		
																4	75		
																59	90		
. .	. . .	. .	. . .	. .	. . .	. .	. . .	. .	. . . .	. .	. . . .	. .	75	1	50	1	50		
																1			
. .	. . .	. .	. . .	. .	. . .	. .	. . .	. .	. . . .	. .	. . . .	. .	. . .	3	50	3	50		
2	1 25	1	1 98	22	1 75	. .	. . .	1	1 75	1	2 64	2	1 50	23	66⅔	. .	. .	4	1 25
																		3	2 04
																		1	† 1,500
1	1 00	1	1 00	.	. . .	. .	. . .	. .	. . . .	. .	. . . .	. .	. . .	. .	. . .	. .	. .	2	1 00
. .	. . .	. .	. . .	2	. . .	. .	. . .	. .	. . . .	. .	. . . .	2	1 00						
.	. . .	. .	. .	2	. . .	. .	. . .	1	. . . .	. .	. . . .	. .	. . .	. .	. . .	. .	. . .	2	
1	80	1	1 40	5	1 25	. .	. . .	. .	. . . .	. .	. . . .	. .	. . .	3	40	5	40	1	60
														3	45	8	45	1	80
														4	1 25	1	50		
														1	50				
. .	. . .	. .	. .	5	. . .	. .	. . .	. .	. . . .	. .	. . . .	. .	. . .	. .	. . .	10	75		
1	. . .	1	. . .	12	1 00	. .	. . .	. .	. . . .	1	1 50	4	1 00	10	1 00	13	50	4	
														10	50				
. .	. . .	1	1 66⅔	10	70	2	. . .	1	1 50	. .	. . . .	. .	. . .	35	70	29	45		
					to										to				
					1 10										1 10				
. .	. . .	. .	. . .	. .	. . .	. .	. . .	. .	. . . .	. .	. . . .	. .	. . .	8	. .	13	1 53	11	2 64⅔
. .	. .	. .	. . .	13	1 50	. .	. . .	1	3 50	2	2 00	3	1 75	15	75	33	75	20	1 25
														229	1 00	19	1 00	3	2 00
														28	1 50			2	1 50
														13	1 25				
														4	1 75				
. .	. . .	. .	. .	. .	. . .	. .	. . .	1	. . . .	. .	. . . .	30	. . .	103	50	1	50		
															to		to		
															1 50		1 25		
. .	. . .	4	1 25	10	1 25	. .	. . .	1	1 75	2	2 00	2	1 50	4	1 00	25	60	3	1 25
														49	1 25	2	75		
																2	1 00		

WOOLEN MANUFACTURES.—

No. of returns.	Hours worked per day.	Weeks in operation during the year.	Wool sorters.		Wool washers.		Dyers.		Foremen and Overs's.		Pickers.		Carders.		Spinners		Warpers and beamers.		Reelers.	
			Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
34	10	52	1	2 50	. .	. . .	. .	. . .	. .	. .	1	1 00	1	2 50	3	2 00	. .	. . . .	. .	. . .
35	10	50	. .	. . .	. .	. . .	. .	. . .	2	. . .	6	. . .	1	. . .	3	. .	. .	. . . .	. .	. . .
36	10	39	. .	. . .	. .	. . .	. .	. . .	. .	. . .	. .	. . .	. .	. . .	. .	. . .	. .	. . . .	. .	. . .
37	10	51	24	2 50	3	2 50	11	2 50	. .	. . .	. .	. . .	3	2 50	. .	. . .	Wa	ges av	era	ged.
38	10	50	* 2	. . .	2	1 16	. .	. . .	1	1 67	. .	. . .	. .	. . .	. .	. . .	. .	. . . .	. .	. . .
									1	3 00										
39	9½	50	2	1 34	. .	. . .	. .	. . .	1	2 50	2	1 00	3	1 25	4	2 25	. .	. . . .	. .	. . .
													1	2 75						
40	10	. . .	. .	. . .	. .	. . .	. .	. . .	. .	. . .	. .	. . .	. .	. . .	1	1 00	. .	. . . .	. .	. . .
41	10	48	1	2 00	1	75	1	2 00	2	2 25	1	1 00	1	1 50	1	1 00	1	1 75	. .	. . .

* Prices paid per warp. † Salaries paid per annum.

EMPLOYEES' WAGES.

Fullers.		Finish's		Weavers		Burlers.		Engineers		Mechanics		Laborers		Women.		Boys.		Other employees	
Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
. .	. . .	. .	. . .	. .	. . .	. .	. . .	1	$1 17	. .	. . . .	. .	. . .	3	. . .	8	66	3	$1 17
														4	$1 08	4	83		
. .	. . .	. .	. . .	. .	. . .	. .	. . .	1	. . . .	. .	. . . .	4	. . .	6	. .	3	. . .	11	
. .	. . .	. .	. . .	10	2 00	. .	. . .	. .	. . . .	. .	. . . .	. .	. .	20	1 00	3	90		
. .	. . .	. .	. . .	. .	. . .	. .	. . .	1	2 50	4	2 50	2	2 50	4	75	7	1 00	12	2 50
																307	42		
. .	. . .	. .	. . .	. .	. . .	. .	. . .	. .	. . . .	. .	. . . .	. .	. . .	14	75	9	37½		
														4	87	1	50		
														1	1 00	14	60		
																4	1 00		
. .	. . .	. .	. . .	. .	. . .	. .	. . .	1	2 50	1	1 00	1	1 50	9	80	1	60		
																6	1 00		
. .	. . .	. .	. . .	. .	. .	. .	. . .	. .	. . . .	. .	. . . .	. .	. . .	3	50	2			
1	$1 25	1	$1 50	. .	. . .	. .	. . .	1	2 00	. .	. . . .	. .	. . .	7	60	8	50	2	80
														10	1 00	3	60	1	1 00

WOOLEN MANUFACTURERS—

The following tables are a recapitulation of the foregoing, showing the

COUNTY.	Number of returns.	Wool sorters.	Wool washers.	Dyers.	Foremen and overseers.	Pickers.	Carders.
Armstrong,	4	4	3	3	9	1	1
Beaver,	1	. . .	1	. . .	1	1	. . .
Bedford,	1	1	. . .	1	1	. . .	1
Berks,	2	. . .	. . .	2	5	2	8
Chester,	1	1	1	1	1	1	3
Clinton,	2	1	. . .	1	. . .	1	2
Columbia,	1	1	1	1	. . .	. . .	. . .
Crawford,	1	1	. . .	. . .	. . .	. . .	. . .
Delaware,	6	. . .	2	20	27	10	8
Erie,	1	. . .	1	. . .	. . .	. .	1
Franklin,	2	3	2	5	5	2	2
Fulton,	1	1	1	1	1	1	2
Huntingdon,	1	1	. . .	1	. . .	. .	1
Lackawanna,	1	1	. . .	. . .	3	1	. . .
Lycoming,	1	1	1	. .	6	. . .	. . .
Mifflin,	1	1	. . .	1	1	. . .	2
Monroe,	1	1	1	1	4	. . .	3
Montgomery,	2	. . .	. .	2	1	1	1
Philadelphia,	9	36	9	42	33	10	11
Tioga,	1	. . .	. .	. . .	. . .	. . .	. . .
Union,	1	1	1	1	2	1	1
	41	55	24	83	100	32	47

RECAPITULATION.

classification of employés and the average daily, yearly, and weekly wages.

Spinners.	Warpers and beamers.	Reelers.	Fullers.	Finishers.	Weavers.	Burlers.	Engineers.	Mechanics.	Laborers.	Women.	Boys.	Other employés.
5	3	5	. . .	. . .	12	2	3	1	7	28	13	7
1	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	7		
1	. . .	1	. . .	1	2	. . .	. . .	. . .	. . .	1	. . .	2
6	3	1	1	1	19	2	2	1	1	11	7	2
4	2	. . .	. . .	1	6	1	. . .	. . .	. . .	36		
2	. . .	. . .	. . .	. . .	2	. . .	. . .	. . .	8	3	. . .	1
1	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	2	4	
. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	3	
46	9	7	5	3	34	4	8	3	12	226	176	42
1	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	1	1	2	
7	1	1	2	1	22	. . .	1	1	2	26	3	8
1	1	. . .	1	1	. . .	. . .	. . .	. . .	. . .	. . .	. . .	2
1	1	. . .	. . .	. . .	2	. . .	. . .	. . .	2			
1	. . .	. . .	. . .	. . .	2	. . .	1	. . .	. . .	. . .	. . .	2
. . .	1	. . .	1	1	5	. . .	. . .	. . .	. . .	11	14	2
2	1	. . .	. . .	. . .	5	. . .	. . .	. . .	. . .	. . .	10	
4	2	. . .	1	1	12	. . .	. . .	1	4	20	13	4
1	1	. . .	. . .	1	10	2	1	. . .	. . .	43	42	11
13	14	3	. . .	4	33	. . .	7	9	42	510	449	54
1	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	3	2	
1	1	. .	1	1	. . .	. . .	1	. . .	. . .	17	11	3
99	40	18	12	16	166	11	24	16	78	945	749	140

RECAPITULATION.—

COUNTY.	AVERAGE DAILY WAGES.							Average weeks employed.
	Wool sorters, dyers, &c.	Foremen and overseers.	Pickers, spinners, &c.	Engineers and mechanics.	Women.	Boys.	Other employees.	
Armstrong,	$1 44	$1 93	$1 36	$1 50	$0 96	$0 58	$1 37	30
Beaver,	1 62	....	1 62	....	50	....	....	51
Bedford,	1 50	2 50	1 25	....	90	....	1 15	43
Berks,	1 25	2 00	1 39	1 25	30	39	1 08	49
Chester,	1 66	3 00	1 80	....	90	....	....	50
Clinton,	1 00	....	1 22	....	....	75	....	39
Delaware,	1 43	2 63	1 58	2 07	1 09	75	1 34	50
Erie,	1 50	....	1 00	....	50	50	75	34
Franklin,	1 26	2 82	1 68	2 19	64	50	1 83	47
Fulton,	1 00	....	1 00	....	....	....	1 00	33
Huntingdon,	1 25	....	....	....	....	....	1 00	
Lycoming,	80	2 62	1 18	....	73	44	70	51
Mifflin,	1 50	1 50	....	..	..	75	.	41
Monroe,	1 17	2 08	1 00	1 50	75	50	1 00	41
Montgomery,	2 00	....	1 69	1 50	90	78	2 65	51
Philadelphia,	2 40	2 94	1 76	1 63	1 04	52	1 69	49
Tioga.								
Union,	1 58	2 25	1 33	2 00	84	53	87	48

Continued.

AVERAGE EARNINGS.

YEARLY.							WEEKLY, (FOR 52 WEEKS.)						
Wool sorters, dyers, &c.	Foremen and engineers.	Pickers, spinners, &c.	Engineers and mechanics.	Women.	Boys.	Other employees.	Wool sorters, dyers, &c.	Foremen and engineers.	Pickers, spinners, &c.	Engineers and mechanics.	Women.	Boys.	Other employees.
$259 20	$347 40	$244 80	$270 00	$172 80	$104 40	$246 60	$4 98	$6 68	$4 71	$5 19	$3 32	$2 01	$4 74
495 72	. . . .	495 72	. . . .	153 00	. . . .	. . . .	9 53	. .	9 53	. . . .	2 94		
387 00	645 00	322 50	. . . .	232 20	. . . .	296 70	7 44	12 40	6 20	. . . .	4 46	. . . .	5 71
367 50	588 00	408 66	367 50	88 20	114 66	317 52	7 07	11 31	7 86	7 07	1 70	2 20	6 11
498 00	900 00	540 00	. . . .	270 00	. . . .	. . . .	9 58	17 30	10 38	. . . .	5 19		
234 00	. . . .	285 48	. . . .	. . .	175 50	. . . .	4 50	. . . .	5 49	. . .	. . .	3 39	
429 00	789 00	474 00	621 00	327 00	225 00	402 00	8 25	15 17	9 12	11 94	6 29	4 33	7 73
306 00	. . . .	204 00	. . . .	102 00	102 00	153 00	5 88	. . . .	3 92	. . . .	1 96	1 96	2 94
356 32	795 24	473 76	617 58	180 48	141 00	516 06	6 85	15 29	9 11	11 88	3 47	2 71	9 92
198 00	. . . .	198 00	. . . .	. . . .	. . . .	198 00	3 81	. . . .	3 81	. . . .	. . .	. . . .	3 81
244 80	801 72	361 08	. . . .	223 88	134 64	214 20	4 71	15 22	6 94	. . . .	4 30	2 59	4 12
369 00	369 00	. . . .	. . . .	. . . .	184 50	. . . .	7 10	7 10	. . . .	. . . .	. . .	3 55	
287 82	511 68	246 00	369 00	184 50	123 00	246 00	5 53	9 84	4 73	7 10	3 55	2 36	4 73
612 00	. . . .	517 14	459 00	275 40	238 68	810 90	11 74	. . . .	9 94	8 83	5 30	4 59	15 59
705 60	864 36	517 44	479 22	305 76	152 88	496 86	13 57	16 62	9 95	9 22	5 88	2 94	9 55
455 04	648 00	383 04	576 00	241 92	152 64	250 56	8 75	12 46	7 37	11 08	4 65	2 94	4 82

MANUFACTURES

NAME OF MILL.	BY WHOM OPERATED.	COUNTY.
1. Hyde & Claney,	Hyde & Claney,	Allegheny,
2. Eagle Cotton Company,	Eagle Cotton Company,	do.
3. J. William Lewis,	J. William Lewis,	Delaware,
4. Simeon Cotton,	Simeon Cotton,	do.
5. J. M. Lewis & Brothers,	J. M. Lewis & Brothers,	do.
6. Samuel Riddle & Son,	Samuel Riddle & Son,	do.
7. Mocophonæa Mill,	James Thompson,	do.
8. Parkmount Cotton and Woolen Company, (limited,)	Parkmount Cotton and Woolen Co.,	do.
9. John Gartside,	John Gartside,	do.
10. Irving & Leiper Manufacturing Co.,	Irving & Leiper Manufacturing Co.,	do.
11. Robert Hall & Sons,	Robert Hall & Sons,	do.
12. R. Patterson & Co.,	R. Patterson & Co.,	do.
13. William Simpson & Sons,	William Simpson & Sons,	Montgomery,
14 The A. Campbell Manufacturing Co.,	The A. Campbell Manufacturing Co.,	Philadelphia,
15. The Ripka Mills,	R. Patterson & Co.,	do.
16. Rice & Bean,	Rice & Bean,	do.
17. C. & J. Gould,	C. & J. Gould,	do.
18. O. F. Holt,	O. F. Holt,	do.
19. Joseph Thurman, junior, & Son,	Joseph Thurman, junior, & Son,	do.
20. Isaac Springthorp,	Isaac Springthorp,	do.
21. Byron Brierley,	Byron Brierly,	do.
22. James Leech & Brothers,	James Leech & Brothers,	do.
23. James Stafford,	James Stafford,	do.

—COTTON.

In what year erected.	Whole number of persons employed.	Amount of capital employed in business.	Amount paid annually for wages of employees.	Amount paid for material used in business.	Value of annual product.	Kind of goods manufactured.
1857	60	$50,000 00	$12,000 00	$60,000 00	*250,000 to 300,000	Carpet chain, twine, yarn, balling, and lamp-wicks.
. .	442	300,000 00	80,000 00	300,000 00	$475,000	Sheeting, bags, twine, carpet, warps, wicks, and battings.
1864	200	20,000 00	70,000 00	175,000 00	$350,000	Cotton plaids and cheviots.
1871	51	39,000 00	9,000 00	35,000 00	*234,000	Cotton yarns.
1868	86	135,000 00	24,000 00	. . . .	$90,000	Plaid Osnaburgs and checks.
1843	365	. . . . .	84,000 00	. . . . .	$500,000	Tickings, cheviots, Osnaburgs, and cottonades.
1850	20	16,000 00	4,300 00	250,000 00	*130,000	Cotton warp yarn.
1865	80	30,000 00	30,000 00	90,000 00	$120,000	Cotton and woolen goods, and cassimeres
1858	45	30,000 00	16,000 00	16,000 00	$60,000	Woolen cassimeres.
1859	92	100,000 00	27,637 66	130,000 00	$210,000	Cotton yarns.
. .	39	6,000 00	15,000 00	45,000 00	†500,000	Cotton and woolen jeans.
1865	215 to 260	300,000 00	38,000 00 to 50,000 00	. . . . .	$200,000 to 300,000	Brown drills, sheeting, and yarns.
1826	152	100,000 00	35,833 00	. . . . .	†2,716,810	Print cloths.
1867	725	. . . . .	230,000 00 to 300,000 00	375,000 00 to 450,000 00	$700,000 to 800,000	Colored cotton goods.
. .	450 to 460	. . . . .	130,000 00	. . . . .	$575,000	Cotton and dress goods.
1875	21	20,000 00	6,687 00	30,000 00	*200,000	Wool and cotton yarns.
1864	24	40,000 00	8,650 00	42,300 00	$60,000	Hosiery.
1850	21	8,000 00	6,500 00	. . . . .	*155,000	Woolen spun yarns, (cotton and wool.)
1861	60	. . . . .	. . . . .	. . . . .	. . . . .	Hosiery and fancy knit goods.
. .	70	15,000 00	8,000 00	25,000 00	$40,000	Cotton and woolen.
. .	21	. . . . .	1,600 00	3,200 00	. . . . .	Woolen yarns.
1872	60	35,000 00	17,000 00	41,000 00	†42,000	Doeskins, jeans.
1872	18	15,000 00	8,000 00	26,000 00	$35,000	Woolen carpet yarn.

* Pounds. † Yards.

MANUFACTURES.—COTTON.—

NAME OF MILL.	Hours worked per day.	Weeks in operation during the year.	CARDING.							
			Overseers.		Picker tenders.		Railway tenders.		Drawing frame tenders.	
			Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
1. Hyde & Claney,	11	52	1	$1 65	..	....	..	....	..	....
2. Eagle Cotton Company,	....	....	2	2 25	2	$1 20	8	$0 46	24	$0 60
3. J. Willlam Lewis	10	....	1	2 66	1	1 83	..	....	..	....
4. Simeon Cotton,	10	51	2	2 25	1	1 33	1	66	1	75
5. J. M. Lewis & Bros.,	10	47	1	1 92	1	1 08	..	....	..	....
6. Samuel Riddle & Son,	10	48	2	2 00 to 2 15	3	....	..	....	..	....
7. Mocophonæa Mill,	10	51	1	1 00	1	1 00	..	....	..	....
8. Parkmount Cotton and Woolen Company, (limited.)	10	50	1	2 50	2	1 25	..	....	..	....
9. John Gartside,	10	51	1	2 00	1	90	..	....	..	....
10. Irving & Leiper Manufacturing Co.,	10	....	3	1 75 to 3 50	2	1 33	..	....	..	....
11. Robert Hall & Sons,	..	....	1	2 13	..	....	..	....	..	....
12. R. Patterson & Co.,	10	50	1	3 17	..	....	..	....	..	....
13. William Simpson & Sons,	10	51	1	2 00	..	....	..	....	..	....
14. The A. Campbell Manufacturing Co.,	10	50	5	1 50 to 3 50	8	1 00 to 1 50	..	....	..	....
15. The Ripka Mills,	10	50	1	1 04	8	98 to 1 21	..	....	..	....
16. Rice & Bean,	....	50	1	2 00	2	1 33	..	....	..	....
17. C. & J. Gould,	10	50	..	....	..	....	..	....	..	....
18. O. F. Holt.										
19. Joseph Thurman, jr., & Son,	10	52	..	....	..	....	..	....	..	....
20. Isaac Springthorp.										
21. Byron Brierley.										
22. James Leech & Bros.										
23. James Stafford,	10	50	2	4 00	2	1 50	..	....	..	....

EMPLOYEES' WAGES.

CARDING.								SPINNING.						Women.		Boys.	
Speeder tenders.		Picker boys.		Grinders.		Strippers.		Overseers.		Mule spinners.		Frame spinners.					
Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
4	$0 50	..	....	..	....	..	....	..	....	..	....	..	..	43	$0 50	4	$0 25
10	60	19	$0 45	3	$1 25	10	$0 75	2	$2 25	1	$2 00	23	$0 65	193	46 to 65	217	33 to 45
..	....	1	50	1	1 62	2	1 16 to 1 37	2	2 25 to 2 66	..	....	boys 20	50	45	75 to 1 00	43	50 to 1 16
3	1 00	1	17	1	1 33	..	....	1	1 66	..	....	10	33	7	75 to 1 00	19	33 to 52
..	....	1	41	..	....	1	81	1	1 83	1	1 50	10	58	28	72 to 1 00	4	50 to 62
..	....	..	....	3	1 37	..	....	4	1 50	..	....	..	..	81	70 to 1 00	94	30 to 95
..	....	..	....	1	1 00	..	....	1	1 00	..	....	..	..	6	75	9	50
..	....	..	....	6	1 00	..	....	1	2 00	..	....	..	..	22	60 to 1 15	7	60 to 75
..	....	..	....	..	....		....	1	....	1	....	..	..	3	75 to 1 30	9	
..	....	..	....	1	1 58		1 16	1	2 42	3	1 33	..	..	27	75 to 1 00	41	50 to 67
..	....	..	....	..	....	2	1 25	..	....	..	....	..	..	22	1 15	6	41 to 90
3	82 to 1 17	..	....	1	1 00	..	....	..	....	5	75 to 1 23	..	..	30	70 to 96	100	33 to 75
..	....	..	....	1	1 00	1	90	1	2 0	1	1 05	..	..	100	47 to 96	20	40 to 78
..	....	..	....	6	1 25	..	....	8	1 00 to 3 00	9	1 75	..	..	181	40 to 1 75	68	45 to 1 00
..	....	..	....	4	98 to 1 21	..	....	2	98 to 1 21	14	98 to 1 21	..	..	178	84	75	37 to 58
..	....	..	....	2	1 32	..	....	1	2 50	1	1 50	..	..	..	..	13	
..	....	..	....	..	....	..	....	..	....	..	....	..	..	17	1 00 to 1 40	2	80
..	....	..	....	..	....	..	....	..	....	..	....	..	..	40	....	5	
..	....	1	1 00	2	1 00	..	....	..	....	1	2 00	..	..	..	....	3	75

MANUFACTURES.—COTTON.—

NAME OF MILL.	DRESSING.											
	Overseer		Second hand.		Spoolers		Warpers		Drawers and twisters.		Dressers	
	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
1. Hyde & Claney,	1	$1 67	. .	. . .	. .	. . .	. .	. . .	. .	. . .	. .	. .
2. Eagle Cotton Mill Company,	1	2 25	1	$1 20	22	$0 57	7	$0 60	13	$0 50	6	$0 75
3. J. Wm. Lewis,	. .	. . .	. .	. . .	. .	. .	3	2 25	. .	. . .	. .	. . .
4. Simeon Cotton,	. .	. . .	. .	. . .	4	75						
5. J. M. Lewis & Brothers,	1	1 87	. .	. . .	. .	. . .	1	2 16	2	1 7	. .	. . .
6. Samuel Riddle & Son,	. .	. . .	. .	. . .	. .	. . .	6	2 15	6	1 60	. .	. . .
7. Mocophonæa Mill,	. .	. . .	. .	. . .	. .	. . .	1	1 00				
8. Parkmount Cotton and Woolen Company, (Limited.)	. .	. . .	. .	. . .	. .	. . .	. .	. . .	. .	. . .	. .	. . .
9. John Gartside,	. .	. . .	. .	. . .	. .	. . .	1	1 00	. .	. . .	. .	. . .
10. Irving & Leiper Manufacturing Co.,	1	2 67	1	1 00	.	. . .	3	2 60	. .	. . .	. .	. . .
11. Robert Hall & Sons,	. .	. . .	. .	. . .	. .	. . .	1	1 25	. .	.	. .	. . .
12. R. Patterson & Co.,	. .	. . .	. .	. . .	. .	. . .	3	2 00 to 2 50	2	1 33 to 1 50	3	1 67 to 2 00
13. William Simpson & Son's,	1	1 94	1	1 30	. .	. . .	. .	. . .	. .	. . .	. .	. . .
14. The A. Campbell Manufacturing Co.,	4	1 25 to 3 00	. .	. . .	. .	. . .	8	1 25 to 1 75	.	. . .	. .	. . .
15. The Ripka Mills,	. .	. . .	6	98 to 1 21	. .	. . .	. .	. . .	. .	. . .	. .	. . .
16. Rice & Bean,	. .	. . .	. .	. . .	. .	. . .	. .	. . .	. .	. . .	. .	. . .
17. C. & J. Gould,	. .	. . .	. .	. . .	. .	. . .	. .	. . .	. .	. . .	. .	. . .
18. O. F. Holt,	. .	. .	. .	. . .	. .	. . .	. .	. . .	. .	. . .	. .	. . .
19. Joseph Thurman, junior, & Son,	. .	. . .	. .	. .	. .	. . .	1	. . .	. .	. . .	. .	. . .
20. Isaac Springthorp.												
21. Byron Brierley.												
22. James Leech & Brothers.												
23. James Stafford.												

EMPLOYEES' WAGES.—Continued.

WEAVING.						REPAIR SHOP, ENGINE ROOM, ETC,												Other employees	
Overseer		Weavers		Drawing-in hands.		Foremen		Wood workers.		Iron workers.		Engineer		Laborers		Overseer in cloth room.			
Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
..	....	..	....	..	....	..	....	..	....	..	....	..	....	..	....	..	....	4	$1 25
2	$2 25	80	$0 75	..	....	2	$2 25	2	$1 75	1	$1 75	2	$2 25	..	....	1	$1 83		
..	....	25	1 50	..	....	..	....	1	1 50	..	....	1	2 50	..	....	..	....	1	1 62
2	2 16	14	1 00	..	....	1	2 50	1	1 50	..	....	2	1 65	..	....	1	1 42	6	1 66 to 3 00
4	2 00	55	1 25	..	....	..	....	3	2 00	4	2 25	1	2 13	..	....	1	2 00	9	1 37 to 2 00
2	2 50	22	1 15	2	$1 75	..	....	..	....	..	....	1	2 00	..	....	2	2 50	12	1 20 to 2 85
2	2 00	19	1 30	..	....	..	....	..	....	..	....	1	2 00	..	....	..	....	4	1 00 to 2 00
..	....	..	....	..	....	..	....	..	....	1	2 00	1	2 33	1	50	..	....	4	1 33 to 1 67
..	....	..	....	..	....	1	3 00	..	....	..	....	1	2 12	1	1 33	1			
3	2 00	80	83 to 92	..	....	..	....	1	1 67	1	1 67	2	1 33 to 1 50	1	1 08	1	2 16	1	1 58
4	1 52	..	....	..	....	1	2 30	1	1 30	1	2 30	2	1 21						
6	3 00 to 4 00	325	1 00	..	....	3	2 50 to 4 00	4	1 50 2 25	6	2 00 to 2 50	2	2 50	15	1 00	..	....	57	1 00 to 2 50
9	98 to 1 21	93	98 1 21	2	98 to 1 21	1	....	3	....	4	....	1	....	..	....	..	....	59	98 to 1 21
..	....	..	....	..	....	..	....	..	....	..	....	1	2 00						
..	....	1	1 75	..	....	..	....	..	....	..	....	1	2 50	..	....	..	....	3	1 50 to 2 50
.	....	..	....	..	....	..	....	1	1 66	..	....	1	1 66	..	....	..	....	6	2 00 to 4 00
..	....	12	....	..	....	..	....	..	....	..	....	..	....	..	....	..	....	2	

RECAPITULATION.

The following tables and recapitulation of the foregoing, show the classification of employes, and the average daily, yearly, and weekly wages

COUNTY.	Number of returns.	Overseers.	Picker tenders.	Railway tenders.	Drawing frame tenders.	Speeder tenders.	Picker boys.	Grinders.	Strippers.	Mule spinners.	Mule back side piecers.	Frame spinners.	Women.	Boys.	Second hand.	Spoolers.	Warpers.	Drawers and twisters.	Dressers.	Weavers.	Drawing-in hands.	Wood workers.	Iron workers.	Engineers.	Laborers.	Other employees.
Allegheny,	2	12	2	8	24	14	19	3	10	1	. . .	23	236	221	1	22	7	13	6	80	. . .	1	1	2	. . .	4
Delaware,	10	49	12	1	1	6	3	14	8	10	. . .	40	271	332	1	4	19	10	3	215	2	6	6	10	3	37
Montgomery,	1	8	. .	. . .	. . .	. . .	. . .	1	1	1	. . .	. . .	100	20	1	. . .	. . .	. . .	. . .	. . .	. . .	1	1	2	. . .	. . .
Philadelphia,	10	43	20	. .	. . .	. . .	1	14	. . .	25	. . .	. . .	416	166	6	. . .	9	. . .	. . .	431	2	8	10	6	15	127
	23	112	34	9	25	20	23	32	19	37	. . .	63	1,023	739	9	26	35	23	9	726	4	16	18	20	18	168

RECAPITULATION.

COUNTY.	Number of returns.	AVERAGE DAILY WAGES.				Average weeks employed	AVERAGE EARNINGS.								Average hours worked per day.
							YEARLY.				WEEKLY, (52 WEEKS.)				
		Overseers.	Men.	Women.	Boys.		Overseers.	Men.	Women.	Boys.	Overseers.	Men.	Women.	Boys.	
Allegheny,	2	$2 10	$1 50	53	39	52	$655 20	$468 00	$165 36	$121 68	$12 60	$9 00	$3 18	$2 34	10
Delaware,	10	2 06	1 49	88	60	50	618 00	447 00	264 00	180 00	11 88	8 59	5 28	3 60	10
Montgomery,	1	1 79	1 34	71	59	51	547 74	410 04	217 26	180 04	10 58	7 88	4 18	3 47	10
Philadelphia,	10	2 22	1 51	97	61	50	666 00	453 00	291 00	183 00	12 81	8 71	5 59	3 53	10

Penn Cotton-Mill.

Pittsburgh, Allegheny county.

Establishment located in Allegheny, Allegheny county.

Whole number of persons employed, 257.

Kind of goods manufactured, sheetings, seamless bags, carpet chain twine, and wick.

Amount of capital employed in business, $200,000, capital stock paid in.

Amount of annual product, 1,254,000 pounds.

Amount paid annually for wages of employés, $54,000.

Amount paid for materials used in business, $154,000.

Erected in 1845.

OCCUPATION AND CLASSIFICATION.	Number of men.	Number of women.	No. of apprentices.	Number of youth.	Daily wages paid men.	Daily wages paid women.	Daily wages paid apprentices.	Daily wages paid youth.	Hours worked per day.	Days in operation during the year.
Carding:										
Overseers,	2				$2 25				11	281
Picker-tenders,				4				$0 65		
Railway-tenders,			1	2			$0 40	55		
Drawing-frame-tenders,		6				$0 60				
Speeder-tenders,		13				60				
Picker-boy,				4				50		
Grinders,	2				1 33					
Strippers,				6				75		
Spinning:										
Overseer,	1				2 25					
Frame-spinners,		29	11			70	50			
Dressing:										
Overseer,	1				2 25					
Second hand,	1				1 33					
Spoolers,		20				75				
Warpers,		4				72				
Drawers and twisters,		5				72				
Dressers,	1				1 60					
Weaving:										
Overseer,	1				2 25					
Weavers,		55				90				
Drawing-in hands,		4				75				
Repair Shop, Engine-room, &c.:										
Wood-worker,	1				1 85					
Iron-workers,	3				2 00					
Engineer,	1				2 50					
Laborers and drivers,	4				1 50					
Overseers in cloth-room,	1	5			1 50	60				
Miscellaneous,	9	21	20	11	1 50	60	30	45		

NOTE.—Not included in recapitulation.

D. C. CLAPP,
Treasurer.

BOOTS AND SHOES.

The returns of boot and shoe manufactories are tabulated as follows:

Number of returns.	Name of Operators.	Location.		Whole number of persons employed.	Amount paid for material used in business.	Amount paid annually for wages of employees.	Value of annual product.	Kind of goods manufactured.
		Town or City.	County.					
1	Erie Boot and Shoe Company,	Erie,	Erie,	80	$70,000 00	$35,000 00	$100,000 00	Boots and shoes.
2	George W. Neldich & Co.,	Carlisle,	Cumberland,	58	53,703 29	13,751 95	46,000 00	Ladies', misses', and children's shoes.
3	Shirley & Rommel,	Philadelphia,	Philadelphia,	246	190,000 00	90,000 00	300,000 00	Men's, boys', youths', women's, misses', and children's shoes.

BOOTS AND SHOES.—EMPLOYEES' WAGES.

Number of Returns.	Hours worked per day.	Weeks in operation during the year.	Cutters.		Stock-fitters		Lasters.		Second lasters.		Sole sewing machine operators.		Upper sewing machine operators.		Heelers.		Trimmers.		Burnishers.	
			Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
1,	10	50	5	$1 75	3	$1 75	6	$1 75	1	$1 75	1	$1 75	10	$0 80	1	$1 75	3	$1 75	2	$1 75
2,	10	48	2	*11 00	2	*5 25	8	*7 50	1	*5 50	1	*10 00	16	*3 25	4	*14 62				
3,	10	40	20	†	12	†	20	†	2	†	2	†	40	†	2	†	4	†	4	†

BOOTS AND SHOES.—EMPLOYEES' WAGES—Continued.

Number of Returns.	Finishers.		Hand sewers.		Foremen.		Crimpers.		Treers.		Bottomers.		Shoe cleaners.		Packers.		Boys.		Other employees.		Female employees.	
	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
1,	3	$1 75	4	$1 75	4	$1 75	1	$1 75	4	$1 75	16	$1 75	2	$0 80	1	$1 75	10	$1 00	3			
2,	9	*12 54			4	*11 00							1	*6 00			2	*2 00	8	*$15 00		
3,	10	†			5	†			1	†	30	†	4	†	2	†	8	†	20	†	60	†

* Wages paid per week.

† Men paid every week from $10 to $20 per week; women from $5 to $10 per week.

RECAPITULATION.

The following tables are a recapitulation of the foregoing, showing the classification of employés, and the average daily, yearly, and weekly wages.

COUNTY.	Number of returns.	Cutters.	Stock fitters.	Lasters.	Second lasters.	Sole sewing machine operators.	Upper sewing machine operators.	Heelers.	Trimmers.	Burnishers.	Finishers.	Hand-sewers.	Foremen.	Crimpers.	Treers.	Bottomers.	Shoe cleaners.	Packers.	Boys.	Other employees.	Female employees.
Erie,	1	5	3	6	1	1	10	1	3	2	3	4	4	1	4	16	2	1	10	3	
Cumberland,	1	2	2	8	1	1	16	4	...	...	9	...	4	...	...	...	1	...	2	8	
Philadelphia,	1	20	12	20	2	2	40	2	4	4	10	...	5	...	1	30	4	2	8	20	60
	3	27	17	34	4	4	66	7	7	6	22	4	13	1	5	46	7	3	20	31	60

RECAPITULATION.—Boots and Shoes.

County.	Average Daily Wages.			Average weeks employed.	Average Earnings.					
					Yearly.			Weekly—(for 52 weeks.)		
	Men.	Boys.	Girls.		Men.	Boys.	Girls.	Men.	Boys.	Girls.
Erie, ...	$1 75	$1 00	$0 80	50	$525 00	$300 00	$240 00	$10 10	$5 78	$4 62
Cumberland, ...	1 89	1 00	57	48	544 32	288 00	164 16	10 47	5 54	3 16
Philadelphia, ...	2 50	. . . . .	1 25	40	600 00	. . . . .	300 00	11 54	. . . . .	5 77

RAILROAD LABOR REPORT.

NAME OF COMPANY.	POST OFFICE ADDRESS.	Number of hours worked per day.	Number of weeks worked during the year.	Local engineers.		Master mechanics of shops.		General foreman of shops.	
				Number.	Wages.	Number.	Wages.	Number.	Wages.
Atlantic and Great Western railroad,	Meadville, Crawford county,	....	....	1	e$140 00	1	e$135 00	17	e$70 00
Bachman Valley railroad,	Hanover, York county,								
Barclay railroad,	Towanda,	10	51	..	.....	1	2 50		
Bellefonte and Snow Shoe railroad,	Bellefonte, Pa.,	10	52	..	.....	1	3 50		
Bell's Gap railroad,	Bellwood, Blair county,	10	47						
Berlin railroad,	Berlin, Somerset county,	10	37						
Buffalo, New York and Philadelphia railroad,	Buffalo, N. Y.,	10	....	..	.....	1	e125 00	6	e60 00
Buffalo, Bradford and Pittsburgh railroad,	P. O, box 839, New York city,	11	51	..	.....	..	.....	1	e63 00
Catasauqua and Fogelsville railroad,	Catasauqua, Pa.,	....	55	..	.....	1	2 50		
Cleveland and Pittsburgh railroad,	Pittsburgh, Pa.,	10	52	..	.....	1	e90 00		
Chartiers railway,	Pittsburgh, Pa.,	10	54						
Chester Valley railroad,	Bridgeport, Montgomery county.								
Cornwall railroad,	Lebanon, Pa.,	....	52						
Delaware and Hudson Canal Company railroad,	Carbondale, Lackawanna county,	10	49						
Delaware and Western railroad,	Wilmington, Del.								
Dunkirk, Allegheny Valley and Pittsburgh railroad,	Dunkirk, N. Y.,	10	....	..	.....	1	3 75		
Erie and Pittsburgh railroad,	Pittsburgh, Pa.,	....	52	..	.....	..	.....	5	e85 88
Foxburg, St. Petersburg and Clarion railroad,	Foxburg, Clarion county,	10	52	..	.....	1	e90 00		
Green Lick Narrow Gauge railway,	Scottdale, Pa.,	10	50						
Ironton railroad,	Ironton, Lehigh county,	10	52						
Junction railroad,	Philadelphia,	10	46	1	e80 00				
Lawrence railroad,	Pittsburgh, Pa.,	10	51						
Little Saw Mill Run railroad,	Pittsburgh, Pa.,	10	45	..	.....	..	.....	1	3 00
Mont Alto railroad,	Mont Alto, Franklin county,	....	55						
Montrose railway,	Manch Chunk, Carbon county,	12	5						
McKean and Buffalo railroad,	Buffalo, N. Y.,	10	52						
New Castle Railroad and Mining Company,	New Castle, Lawrence county,	10							
New Castle and Beaver Valley railroad,	Pittsburgh, Pa.,	9	52⅓						
New York, Lake Erie and Western railroad, (Susquehanna division,)	P. O. box 839, New York city,	10	52	..	.....	1	e200 00	1	e135 00

New York, Lake Erie and Western railroad, (Delaware division,)	P. O. box 839, New York city,	10	58¼			1	e166 66	2	e82 50 to 85 00
New York, Lake Erie and Western railroad, Jefferson R. R., Hawley branch,	P. O. box 839, New York city,	10	52						
Oil City and Ridgeway railroad,	Oil City, Pa.,	....	52½						
Olean, Bradford and Warren railroad,	Olean, N. Y.,	....	52½						
Peach Bottom railway,	York, Pa.,	12	54⅝						
People's railway,	Pottsville, Pa.,	10	58						
Perkiomen railroad,	227 South Fourth street, Philadelphia,	....	57						
Philadelphia and Baltimore Central railroad,	Broad and Washington avenue, Phila.,	....	50	..	.....	1	e166 66	2	e82 50 to 85 00
Philadelphia and Reading railroad,	227 South Fourth street, Philadelphia.								
Pennsylvania Coal Company railroad,	Dunmore, Pa.,	....	....	..	.....	1	e115 00		
Philadelphia, Wilmington and Baltimore railroad,	Philadelphia, Pa.,	10	.....	..	.....	..	.....	11	e94 00
Pittsburgh, Cincinnati and St. Louis railroad,	Pittsburgh, Pa.,	10	58	2	e75 00 to 135 00	1	e180 00	2	e77 50
Pittsburgh and Castle Shannon railroad,	Baldwin township, Allegheny county,	....	....	2	e47 50	1	2 50		
Pittsburgh, Fort Wayne and Chicago railroad,	Pittsburgh, Pa.,	....	52	..	.....	1	e225 00	5	e99 50
Reading and Columbia railroad,	227 South Fourth street, Philadelphia,	....	52						
Salisbury railroad,	235 Liberty street, Pittsburgh, Pa.,	10	52						
Shenango and Allegheny railroad,	Greenville, Mercer county,	....	....	..	.....	1	e76 50		
Somerset and Cambria railroad,	Somerset, Pa.,	10	58⅓						
Stony Creek railroad,	Norristown, Pa.,	10							
Tioga and Elmira State Line railroad,	Blossburg, Pa.,	10	....	..	.....	1	e125 00	1	e83 33
Waynesburg and Washington railroad,	Waynesburg, Greene county,	12							
West Chester and Philadelphia railroad,	3100 Chestnut street, Philadelphia, Pa.,	....	....	..	.....	1	e83 25		
Western Maryland railroad,	Baltimore, Md.,	....	....	..	.....	1	e100 00	3	e70 00 to 80 00
Wilmington and Northern railroad,	Coatesville, Pa.,	....	....	..	.....	1	e80 00		
Lawrenceville and Evergreen railroad,	86 Wood street, Pittsburgh, Pa.,	....	38						
Harrisburg and Potomac Railroad,	Boiling Springs, Pa.,	10							
Monongahela Incline Plane railroad,	Pittsburgh, Pa.,	....	60 5-6						
Wheeling, Pittsburgh and Baltimore R.R., (Pittsburgh div., B. and O. R.R.,)	Washington, Pa.,	10	52¼						
Columbia and Port Deposit railroad,	233 South Fourth street, Philadelphia,	10	52						
East Broad Top Railroad and Coal Company,	Orbisonia, Huntingdon county,	10	....	..	.....	..	.....	1	e50 00
Mount Oliver Incline Plane railroad,	Pittsburgh, Pa.,	10	....	2	e52 00 to 60 00				
Sunbury, Hazleton and Wilkes-Barre railroad,	233 South Fourth street, Philadelphia.								
Lewisburg, Centre and Spruce Creek railroad,	.....	10							
Muney Creek railroad,	Hughesville, Lycoming county,	10	51						

e Per month.

RAILROAD LABOR REPORT—Continued.

NAME OF COMPANY.	Road foreman.		Chief clerk maintenance of way.		Clerks.		Chief telegraph operators.		Telegraph operators.		Ticket agents.		Depot masters.		Train masters.		Train dispatchers.	
	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
Atlantic and Great Western railroad,	2	e$90 00	1	e$100 00	57	e$70 00	..	....	22	e$53 04	5	e$66 60	..	....	..	....	6	e$87 10
Bachman Valley railroad,	1	e35 00																
Barclay railroad,	..	....	..	....	1	e50 00	..	....	..	....	4	e40 00	..	....	..	....	1	e70 00
Bellefonte and Snow Shoe railroad,	..	....	..	....	..	....	..	....	2	e50 00								
Bell's Gap railroad,	..	....	..	....	1	1 60	..	....	..	....	2	e10 00						
Berlin railroad.																		
Buffalo, New York and Philadelphia railroad,	1	e85 00	..	....	24	e50 00	1	e75 00	23	e35 00	24	e40 00	1	e70 00	..	....	2	e60 00
Buffalo, Bradford and Pittsburgh railroad,	1	e63 00	..	....	5	e30 00 to 60 00	..	....	1	e40 00								
Catasauqua and Fogelsville railroad,	1	e52 00	..	....	1	e45 00	1	e52 00	3	e12 00 to 45 00								
Cleveland and Pittsburgh railroad,	..	....	..	....	17	e47 90	..	....	2	e24 65	3	*	5	e80 54	4	2 50	1	e100 00
Chartiers railway,	..	....	..	....	1	e16 20	..	....	2	e24 30	11	e15 63						
Chester Valley railroad,	..	....	..	....	1	e50 00	..	....	12	e26 78	12	e26 78						
Cornwall railroad.																		
Delaware and Hudson Canal Company railroad,	..	....	..	....	7	e29 38	..	....	12	e26 78	..	....	..	....	..	....	2	e76 70
Delaware and Western railroad,	..	....	..	....	2	e40 00	..	....	5	e35 00								
Dunkirk, Allegheny Valley and Pittsburgh railroad,	2	3 00	..	....	4	e50 00	2	1 60	18	e40 00 to 45 00	..	....	..	....	..	....	1	3 75
Erie and Pittsburgh railroad,	1	e93 25	..	....	18	e35 00	..	....	22	e24 00	18	e40 00	..	....	1	e101 25	4	e75 00
Foxburg, St. Petersburg and Clarion railroad,	..	....	..	....	1	e50 00	..	....	..	....	10	e50 00						
Green Lick Narrow Gauge railway.																		
Ironton railroad.																		
Junction railroad,	..	....	..	....	1	e50 00												
Lawrence railroad,	..	....	..	....	..	..	..	....	3	e22 50	1	e28 35	..	....	1	e50 63	1	e72 90
Little Saw Mill Run railroad,	..	....	..	....	1	e66 66												
Mont Alto railroad,	..	....	..	....	..	....	1	....	2	....	3							
Montrose railway.																		
McKean and Buffalo railroad,	..	....	..	....	..	....	..	....	5	e35 00 to 65 00								
New Castle Railroad and Mining Company.																		
New Castle and Beaver Valley railroad,	..	....	..	....	5	e49 50	..	....	7	e29 25	7	e38 70	..	....	1	e50 63	1	e72 90
New York, Lake Erie and Western railroad, (Susquehanna division,)	13	e79 50	..	....	8	e45 00 to 112 50	..	....	2	15 60 to 54 00	1	e45 00	2	e55 00 to 112 50	..	....	2	e31 50 to 45 00

New York, Lake Erie, and Western railroad, (Delaware div.,)	1	e75 00	..	....	6	e42 00	..	....	9	e36 00	..	....	8	e45 00	..	....	3	
N. Y., L. E. and W. R. R., Jefferson R. R., Hawley branch,	..	....	..	....	7	e48 00	..	....	4	e34 00	..	....	10	e46 25	..	....		
Oil City and Ridgeway railroad,	..	....	1	e50 00	1	e17 00												
Olean, Bradford and Warren railroad,	1	e80 00	..	....	10	e50 00	..	....	11	e40 00	12	e50 00	11	e45 00	..	....	1	e65 00
Peach Bottom railway,	..	....	..	....	..	....	..	....	..	....	..	....	..	....	..	....	1	e33 00
People's railway.																		
Perkiomen railroad,	1	e70 00	..	....	..	....	..	....	10	e34 61	..	....	..	....	2	e68 85		
Philadelphia and Baltimore Central railroad,	1	e125 00	..	....	5	e55 00 to 65 00	..	....	2	e50 00	32	e50 00	..	....	..	....	1	e100 00
Philadelphia and Reading railroad.																		
Pennsylvania Coal Company railroad,	7	e32 40 to 80 00	..	....	7	e50 00 to 158 33	..	....	4	e15 00 to 55 00	1	1 75	..	....	..	....	5	e36 00 to 54 00
Philadelphia, Wilmington and Baltimore railroad,	3	e108 33	..	....	100	e59 00	..	....	41	e50 33	7	e100 47	2	e137 50	..	....	1	e150 00
Pittsburgh, Cincinnati and St. Louis railroad,	1	e112 50	1	e75 00	26	e41 50 to 63 00	1	e66 67	32	e42 43	22	e34 00	..	...	1	e112 50	2	e73 00
Pittsburgh and Castle Shannon railroad,	..	....	2	e83 35	..	....	..	....	..	...	3	e30 00 to 50 00						
Pittsburgh, Fort Wayne, and Chicago railroad,	1	e80 00	1	e90 00	138	e60 93	1	e76 50	34	e42 98	27	e19 63	6	e72 90 to 100 00	1	e121 50	8	e90 00
Reading and Columbia railroad,	..	....	..	....	3	e40 00	..	....	17	e17 68	22	e23 57						
Salisbury railroad.																		
Shenango and Allegheny railroad,	1	e67 50	..	....	2	e52 50	..	....	17	e56 12½	..	....	1	e10 00				
Somerset and Cambria railroad.																		
Stony Creek railroad,	7	1 70	..	....	..	....	..	....	2	e60 00								
Tioga and Elmira State Line railroad,	1	e70 00	..	....	..	....	..	....	13	e25 00	..	....	13	e30 00				
Waynesburg and Washington railroad,	..	....	..	....	..	....	..	....	..	....	4	1 25						
West Chester and Philadelphia railroad,	1	e65 00	..	....	8	e41 78	..	....	3	e30 00	13	e40 00	1	1 25	1	e80 00	1	e70 00
Western Maryland railroad,	..	....	..	....	8	e35 00 to 85 00	1	e83 00	8	e35 00 to 40 00	29	e20 00 to 83 00						
Wilmington and Northern railroad,	1	e75 00	..	....	4	e40 00	..	....	10	e30 00	25	e40 00						
Lawrenceville and Evergreen railroad.																		
Harrisburg and Potomac railroad.																		
Monongahela Incline Plane railroad,																		
Wheeling, Pittsburgh and Balt. R. R., (Pitts. div., B. & O. R. R.,)	..	....	..	....	1	e40 00												
Columbia and Port Deposit railroad,	..	....	..	....	1	e40 00	..	....	1	e40 00	5	e5 00 to 75 00						
East Broad Top Railroad and Coal Company,	1	e45 00	..	....	2	e40 50	..	....	9	e15 00 to 40 00								
Mount Oliver Incline Plane railroad,	..	....	..	....	1	e8 33	..	....	1	e55 00								
Sunbury, Hazleton and Wilkes-Barre railroad,	..	....	..	....	2	e91 11	..	....	12	e19 19	3	e40 19	..	....	1	e49 50	2	e32 13
Lewisburg, Centre, and Spruce Creek railroad,	..	....	..	....	1	e57 00	..	....	2	e25 00								
Muncy Creek railroad,	1	1 50	..	....	1	80												

e Per month.

* Ten per cent. commission.

RAILROAD LABOR REPORT.—Continued.

NAME OF COMPANY.	Locomot've drivers.		Conduc'rs passenger.		Conduc'rs freight.		Brakemen		Firemen.		Watch-men.		Track foremen.		Trackmen		Baggage masters.		Bridge builders.	
	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
Atlantic and Great Western railroad,	90	e$87 10	8	e$99 00	57	e$71 75	215	e$46 00	94	e$49 14	23	e$33 25	19	e$45 00	95	e$28 60	20	e$51 50	15	e$65 00
Bachman Valley railroad.																				
Barclay railroad,	4	3 00	1	3 00	2	2 50	11	1 50	4	1 80	1	1 50	2	e40 00	12	1 00				
Bellefonte and Snow Shoe railroad,	3	2 70	1	2 03	2	2 03	8	1 35	3	1 71	2	1 50	5	e37 80	18	1 00	. .	. . . .	10	1 75 to 3 00
Bell's Gap railroad,	2	2 43	. .	. . . .	2	1 80	2	1 45	2	1 45	. .	. . . .	1	e40 00	6	1 60				
Berlin railroad,	1	e25 00	. .	. . . .	1	e25 00	. .	. . . .	1	e15 00	. .	. . . .	1	1 15	8	1 00				
Buffalo, New York and Philadelphia railroad,	32	e100 00	3	e60 00	23	e40 00	147	e40 00	32	e60 00	6	e40 00	25	e40 00	158	1 00	6	e40 00	12	e50 00
Buffalo, Bradford and Pittsburgh railroad,	6	2 92 to 3 60	2	3 46	2	2 25 to 2 70	13	1 60 to 1 80	6	1 90 to 2 16	7	1 12 to 1 60	6	e40 50	41	1 00 to 1 12	1	e40 00		
Catasauqua and Fogelsville railroad,	2	2 25	1	e58 50	1	1 55	3	1 50	2	1 80 to 1 90	1	1 00	10	1 15	20	1 00	1	1 63		
Cleveland and Pittsburgh railroad,	27	3 15	5	2 42	16	2 28	34	1 62	27	1 70	6	1 70	3	e40 00	30	1 00	4	1 40		
Chartiers railway,	3	2 85	1½	2 08	1½	1 58	9	86	3	1 48	.	. . . .	3	e36 00	24	1 00	2	85		
Chester Valley railroad.																				
Cornwall railroad,	3	2 00	. .	. . . .	2	e45 00	6	1 25 to 1 50	3	1 25 to 1 65	1	1 00	1	e60 00	9	1 00 to 1 25				
Delaware and Hudson Canal Company railroad,	30	e74 10	2	e69 94	24	e61 00	75	e42 12	30	e44 20	4	e31 80	20	e36 40	177	e23 92	4	e36 14		
Delaware and Western railroad,	4	e75 00	2	e75 00	1	e50 00	5	e40 00	3	e40 00	2	e40 00	4	e45 00	10	1 25				
Dunkirk, Allegheny Valley and Pittsburgh railroad,	12	3 00	3	3 00	6	e60 00	24	e45 00	12	e54 00	4	1 12½	25	e45 00	146	1 05	3	e54 00	1	2 00
Erie and Pittsburgh railroad,	26	3 18	5	2 30	38	1 95	36	1 61	30	1 90	18	e32 50	21	e40 00	138	1 00	4	1 95	16	2 00
Foxburg, St. Petersburg and Clarion railroad,	2	2 50	2	2 25	. .	. . . .	4	1 50	3	1 59	. .	. . . .	8	e45 00	23	1 10	2	e25 00	1	2 50
Green Lick Narrow Gauge railway,	1	1 75	. .	. . . .	. .	. . . .	2	1 25	. .	. . . .	. .	. . . .	1	1 15	2	1 00				
Ironton railroad,	1	2 60	. .	. . . .	. .	. . . .	3	1 25	1	2 00	1	80	1	1 80	7	90				
Junction railroad,	. .	. . . .	. .	. . . .	. .	. . . .	. .	. . . .	. .	. . . .	. .	. . . .	2	1 50	9	1 20				
Lawrence railroad,	7	3 04	5	2 40	2	2 00	9	1 57	6	1 60	1	1 00	4	e40 00	32	1 00	1	e45 00		
Little Saw Mill Run railroad,	1	2 75	. .	. . . .	. .	. . . .	2	1 75	2	2 10	2	1 35								
Mont Alto railroad,	2	2 75	1	e52 00	1	e50 00	1	1 10	2	1 50	. .	. . . .	3	1 40 to 1 45	23	75				
Montrose railway,	1	2 75	1	e90 00	.	. . . .	1	1 75	1	1 75	. .	. . . .	4	1 25	16	90				
McKean and Buffalo railroad,	2	e70 00 to 80 00	1	e60 00	. .	. . . .	4	e45 00	2	e45 00	. .	. . . .	2	e40 00	12	1 20				
Castle Railroad and Mining Company,	1	2 50	. .	. . . .	. .	. . . .	1	1 50	1	1 50	. .	. . . .	1	1 50	3	1 10				

New Castle and Beaver Valley railroad,	6	3 04	5	2 40	4	1 95	10	1 51	6	1 69	3	e31 50	4	e40 00	48	1 00	6	40 00		
New York, Lake Erie and Western railroad, (Susquehana division,)	7	2 92	..	....	..	....	..	....	12	1 40 to 2 00	10	e36 00 to 51 00	5	e40 00 to 54 00	47	1 00	2	e40 50		
New York, Lake Erie and Western railroad, (Del. div.)	7	3 60	..	....	5	2 70	18	1 80	7	2 12½	25	1 00	9	e45 00	63	1 00	1	e15 00		
Jefferson RR., Hawley branch N. Y. L. E. & W. RR.,	4	3 60	1	e90 00	4	2 70	17	1 80	4	2 12	36	1 00	10	e45 00	67	1 00	3	e40 50		
Oil City and Ridgeway railroad,	.	....	..	....	..	....	1	e20 00												
Olean, Bradford and Warren railroad,	6	e90 00	3	e65 00	3	e65 00	13	e40 00	7	e30 00	3	e30 00	..	....	57	1 00	1	e40 00		
Peach Bottom railway,	3	e65 00	2	e50 00	1	e40 00	3	e25 75	3	e33 02	1	1 25	8	1 25	25	90	2	e40 00		
People's railway,	1	2 25	2	1 50	..	....	..	..	1	1 75	1	80	..	....	2	1 25				
Perkiomen railroad,	8	2 85	3	2 66	5	1 89	16	1 82	8	1 74	7	e30 13 to 32 00	20	1 25	20	1 10	3	1 76		
Philadelphia and Baltimore Central,	6	3 00	3	2 50 to 2 75	2	2 50	9	1 50 to 1 60	6	1 50 to 1 75	1	e50 00	12	e45 00	60	1 00	3	1 75	1	e100 00
Philadelphia and Reading railroad.																				
Pennsylvania Coal Company railroad,	2	e50 00	2	2 12	44	2 00 to 2 17	47	1 40 to 1 70	24	e30 00 to 37 20	25	1 00	..	....	102	80 to 1 35				
Philadelphia, Wilmington and Baltimore railroad,	66	e86 11	19	e87 03	18	e73 19	75	e46 72	48	e48 96	40	e45 76	19	e65 54	197	1 14	24	e53 75	30	2 12
Pittsburgh, Cincinnati and Saint Louis railroad,	37	2 75	3	3 38	19	2 47	92	1 52 to 1 67	37	1 53	11	e33 50 to 35 00	10	e36 00	90	1 00	3	1 57	31	1 80
Pittsburgh and Castle Shannon railroad,	2	2 00	1	e50 00	.	....	1	e30 00	1	e18 75	1	e37 50	..	....	5	1 15 to 1 25				
Pittsburgh, Fort Wayne and Chicago railroad,	102	3 03	29	3 11	69	2 13	194	2 57	104	1 60	27	e32 50	15	e40 00	114	1 00	28	1 92	31	2 00
Reading and Columbia railroad,	11	2 81	5	2 52	6	2 07	30	1 67	11	1 73	11	e26 81	2	e53 00	54	1 00	4	1 75		
Salisbury railroad,	1	e55 00	1	e40 00	..	.	.	....	1	e35 00	1	1 00	6	1 00						
Shenango and Allegheny railroad,	6	e40 00	2	e90 00	3	e72 00	10	1 80	6	1 60	2	e36 00	10	e40 50	35	1 05	..	....	2	2 25
Somerset and Cambria railroad,	1	e40 00	2	e50 00	1	e50 00	.	....	1	e32 50	1	e30 00	1	3 00	4	1 00				
Stony Creek railroad,	2	2 60	2	2 60	1	1 40	2	....	2	1 70	2	e67 00	3	1 30	6	1 00	2	1 60		
Tioga and Elmira State Line railroad,	17	3 50	5	e75 00	6	2 50	34	1 62½	17	1 80	4	1 30	15	e40 00	75	1 00	3	e60 00		
Waynesburg and Washington railroad,	2	2 00	1	1 25	..	....	1	1 10	2	1 00	1	1 00	6	1 17	12	1 00				
West Chester and Philadelphia railroad,	6	2 88	5	2 40	1	2 40	10	1 55	7	1 70	3	e40 00	6	1 63	24	1 10	4	1 65		
Western Maryland railroad,	13	2 50 to 4 25	3	e75 00	4	2 75 to 3 00	12	1 54 to 2 00	13	1 50 to 2 50	5	e35 50 to 40 00	19	e18 00 to 50 00	100	1 05	5	e50 00	3	e40 00 to 65 00
Wilmington and Northern railroad,	6	2 55	2	2 40	3	2 40	8	1 40	5	1 75	5	e30 00	10	e30 00	60	1 00	2	1 40	1	e55 00
Lawrenceville and Evergreen railroad,	1	2 25	..	....	..	....	..	....	..	....	1	1 20	1	1 50						
Harrisburg and Potomac railroad,	1	1 54	1	1 54	..	....	1	96	1	96	1	57	2	1 35	10	90				
Monongahela Incline Plane railroad,	†2	e70 00 to 75 00	2	e60 00	..	....	..	....	2	e50 00	..	....	..	....	1	e50 00				
Wheeling, Pittsburgh and Baltimore railroad, (Pittsburgh Division, Baltimore and Ohio railroad,)	1	2 93	2	e67 50	..	....	1	e31 50	1	1 58	..	....	6	1 17	23	1 00	1	e45 00	5	1 60 2 10
Columbia and Port Deposit railroad,	1	3 15	1	2 50	..	....	2	1 65	1	1 65	..	....	8	e41 00	20	1 00				
East Broad Top Railroad and Coal Company,	6	1 50 to 2 50	1	1 90	4	1 61	7	1 12	6	1 21	5	1 00	6	e30 00	14	90	1	1 17		

RAILROAD LABOR REPORT—Continued.

NAME OF COMPANY.	Locomot'e drivers.		Conduc'rs passenger.		Conduc'rs freight.		Brakemen		Firemen.		Watchmen		Track foremen.		Trackmen		Baggage masters.		Bridge builders.	
	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
Mount Oliver Incline Plane railroad,	..	....	..	....	..	....	..	....	2	e45 00	..	....								
Sunbury, Hazleton and Wilkes-Barre railroad,	7	e76 42	1	e65 00	7	e36 61	24	e23 70	7	e46 21	2	e30 00	9	....	78	e21 65				
Lewisburg, Centre and Spruce Creek railroad,	1	e91 00	1	e70 00	..	....	2	e55 00	1	e60 00	1	e37 00								
Muncy Creek railroad,	1	2 50	1	....	..	....	1	1 25	1	1 25	..	....	..	....	3	1 00				

e Wages per month.

† Stationery engineers.

RAILROAD LABOR REPORT.—Continued.

NAME OF COMPANY.	Carpent'rs		Car builders.		Black-smiths.		Machinists		Laborers.		Switch tenders.		Other employees		Women.		Boys.	
	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
Atlantic and Great Western railroad,	22	e$68 18	53	e$47 58	21	e$62 66	75	e$58 75	168	e$38 22	..	....	25	e$50 70 to 94 00	1	e$10 00		
Bachman Valley railroad,	..	....	..	....	..	....	..	....	4	90								
Barclay railroad,	6	1 50	..	....	1	2 25	..	....	1	e20 00	..	....	1	1 25				
Bellefonte and Snow Shoe railroad,	2	1 89	2	1 50	2	....	1	2 00	3	1 00	1	e$37 00						
Bell's Gap railroad,	1	1 80	..	....	2	1 43	..	....	..	....	..	....	1	e35 00				
Berlin railroad.																		
Buffalo, New York and Philadelphia railroad,	10	e50 00	7	....	8	e40 00	15	e55 00	153	1 00	20	e40 00	4	e150 00 to 166 67				
Buffalo, Bradford and Pittsburgh railroad,	..	....	2	1 30 to 2 10	2	1 40 to 1 80	..	....	14	1 12½	9	1 60	9	e30 00 to 125 00				
Catasauqua and Fogelsville railroad,	1	1 50	..	....	..	....	1	1 10	..	....	1	1 10	1	1 00				
Cleveland and Pittsburgh railroad,	2	2 00	..	....	2	2 20	1	2 25	28	1 20	3	1 66	3	e40 00 to 60 00	3	90	2	e$16 75
Chartiers railway,	..	....	..	....	..	....	..	....	2	1 02								
Chester Valley railroad.																		
Cornwall railroad,	3	1 00 to 2 00	..	....	1	1 60												
Delaware and Hudson Canal Company railroad,	19	e44 46	14	e31 72	2	e55 12	14	e47 58	45	e25 22	11	e25 22	4	e14 30 to 33 28	..	....	13	e13 26
Delaware and Western railroad,	2	2 00	..	....	2	....	..	....	1	1 25	..	...	..	....	1	e35 00		
Dunkirk, Allegheny Valley and Pittsburgh railroad,	..	....	..	...	2	....	3	2 00	8	1 12½								
Erie and Pittsburgh railroad,	17	2 00	..	....	11	2 02	14	2 50	16	1 05	4	e37 00	56	1 03 to 2 31				
Foxburg, St. Petersburg and Clarion railroad,	1	2 00	..	....	1	2 50	1	2 50	2	1 25								
Greenlick Narrow Gauge railway,	1	1 50	..	....	1	1 50												
Ironton railroad,	1	1 25	..	....	1	1 60												
Junction railroad,	..	....	..	....	..	....	..	....	224	1 00	..	....	1	e15 00				
Lawrence railroad,	..	....	..	....	..	....	..	....	..	....	..	....	6	1 05				
Little Saw-Mill Run railroad,	..	....	..	....	..	....	..	....	4	1 25	..	....	9	1 75 to 2 00	..	....	2	1 00

RAILROAD LABOR REPORT.—Continued.

NAME OF COMPANY.	Carpent'rs		Car builders.		Blacksmiths.		Machinists		Laborers.		Switch tenders.		Other employees		Women.		Boys.	
	Number.	Wages.	Number	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
Mont Alto railroad.																		
Montrose railway.																		
McKean and Buffalo railroad,	..	....	..	....	2	e$37 50 to 65 00												
New Castle Railroad and Mining Company,	..	....	3	$1 50	2	1 50												
New Castle and Beaver Valley railroad,	..	....	..	....	..	....	..	....	..	....	..	....	1	e$36 00				
New York, Lake Erie and Western railroad, (Susquehanna div.,)	12	$2 08	..	....	20	2 22	123	$2 19	34	$1 44	24	$1 80 to 2 03	175	e35 00 to 117 00	1	$1 80	17	50 to 1 06
New York, Lake Erie and Western railroad, (Delaware division,)	5	2 00	..	....	1	....	..	....	5	....	..	....	22	1 20 to 1 90				
N. Y., L. E. and Western R. R., Jefferson R. R., Hawley branch,	..	....	..	....	1	1 90	..	....	16	1 40	3	1 66						
Oil City and Ridgeway railroad.																		
Olean, Bradford and Warren railroad,	1	e50 00	1	e45 00	2	2 00	1	2 00	19	1 00	2	2 00						
Peach Bottom railway,	..	....	..	....	1	1 15	..	....	..	....	..	....	1	1 25				
Peoples' railway,	..	....	..	....	1	1 75												
Perkiomen railroad,	..	....	..	....	1	1 90	..	....	2	99	..	....	1	e39 69				
Philadelphia and Baltimore Central,	3	2 00 to 2 15	5	2 00	2	2 25	2	2 12½	..	....	..	....	9	e30 00 to 40 00				
Philadelphia and Reading railroad.																		
Pennsylvania Coal Company railroad,	35	e27 20 to 115 00	43	1 00 to 3 10	23	1 05 to 1 95	15	1 00 to 1 95	47	e24 00 to 90 00	..	....	94	e24 00 to 115 00	..	....	15	40 to 80
Philadelphia, Wilmington and Baltimore railroad,	23	2 10	34	1 93	23	2 16	52	1 98	167	1 45	41	e40 00	281	e30 30 to 45 00	21	e18 33 to 40 00	38	80 to 1 00
Pittsburgh, Cincinnati and St. Louis railroad,	4	1 73	27	e32 00 to 41 25	1	2 20	8	2 02	57	1 03 to 1 12	4	1 03 to 1 62	50	e24 00 to 64 24	3	1 00	1	50
Pittsburgh and Castle Shannon railroad,	2	1 40																
Pittsburgh, Fort Wayne and Chicago railroad,	159	1 78	20	2 20	32	2 02	60	2 08	187	1 05 to 1 12	21	1 58	134	1 29 to 2 00	26	e25 45		
Reading and Columbia railroad,	5	1 60	..	....	2	1 50	2	2 10	7	1 10	..	....	3	e28 00				
Salisbury railroad.																		

Shenango and Allegheny railroad,	2	1 58	1	2 15	2	2 04	1	2 60	9	1 22	2	1 57	8	1 26 to 1 75						
Somerset and Cambria railroad.																				
Stony Creek railroad,													2	e34 00						
Tioga and Elmira State Line railroad,	6	1 75	8	1 50 to 1 70	5	2 20 to 2 30	12	1 80 to 2 25	12	1 05 to 1 25			12	1 15 to 1 40						
Waynesburg and Washington railroad,	1	2 00			1	1 50														
West Chester and Philadelphia railroad,	6	1 81			4	2 00	4	2 00	16	1 35			1	1 60	6	37½				
Western Maryland railroad,			5	e50 00	4	2 35 to 2 75	6	2 00 to 2 40	22	1 25 to 1 40	3	e36 00 to 40 00	4	e36 00 to 40 00	5	e8 00 to 30 00				
Wilmington and Northern railroad,	10	1 75			4	1 80	3	2 00	10	1 10	2	e33 00								
Lawrenceville and Evergreen railroad.																				
Harrisburg and Potomac railroad.																				
Monongahela Incline Plane railroad.																				
Wheeling, Pittsburgh and Baltimore railroad, (Pittsburgh division Baltimore and Ohio railroad,)					1	e23 40			1	1 04			2	e25 00 to 75 00						
													‡3							
Columbia and Port Deposit railroad,									1	e35 00			2	e30 00 to 45 00						
East Broad Top Railroad and Coal Company,	3	1 35 to 1 80			3	1 00 to 1 80			17	90			6	1 00 to 1 10						
Mount Oliver Incline Plane railroad.																				
Sunbury, Hazleton and Wilkes-Barre.																				
Lewisburg, Centre and Spruce Creek railroad.																				
Muncy Creek railroad.																				

e Per month. †Stationary engineers. ‡On commission.

RAILROAD LABOR REPORT—Continued.

NAME OF COMPANY.	Boiler-makers.		Tinners.		Copper-smiths.		Molders.		Painters.		General master mechanic.		General master car-builder.		Chief clerk of motive power.	
	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
Atlantic and Great Western railroad,	14	e$57 72	2	e$55 12	2	e$61 10	..	....	13	e$58 75	1	e$225 00	1	e$225 00		
Barclay railroad,	...	...	...	...	...	...	...	...	1	2 00						
Buffalo, New York and Philadelphia railroad,	3	e50 00	1	e55 00	...	...	...	...	4	e40 00						
Cleveland and Pittsburgh railroad,	...	...	...	...	...	...	...	...	1	1 80						
Delaware and Hudson Canal Company railroad,	2	e57 20	...	...	...	...	...	...	4	e42 20						
New York, Lake Erie and Western railroad, (Susq. division,)	15	2 28	2	2 35	2	2 25	38	$2 24	3	2 13						
Pittsburgh, Fort Wayne and Chicago railroad,	15	2 10	14	1 84	...	...	...	...	39	2 01	...	...	...	...	1	e$95 00
Olean and Bradford railroad,	...	...	...	...	...	...	...	...	2	1 50 to 2 25	...	...	...	...		
Philadelphia and Baltimore Central railroad,	...	...	...	...	...	...	...	...	2	2 00	...	...	...	...	1	e00 00
Philadelphia, Wilmington and Baltimore railroad,	10	1 87	9	1 95	1	3 25	...	...	45	1 89	...	...	...	...	1	e81 00
Pittsburgh, Cincinnati and St. Louis railroad,	1	2 20	1	e52 65	...	...	...	...	2	2 00	...	...	...	...	1	e65 00
Pennsylvania Coal Company railroad,	3	1 00 to 2 25	...	...	...	...	27	1 00 to 2 10	...	...	...	...	...	...		
Western Maryland railroad.																

e Per month.

Philadelphia and Reading Railroad,

No. 227 South Fourth street, Philadelphia, Penn'a.

OCCUPATION AND CLASSIFICATION.	Men.	Pay per day.	Boys.	Pay per day.	Women.	Pay per day.	Average pay of men per month.		Pay of women per month.	Pay of boys per month.
Resident engineers,	5						$106 31	$267 75		
Assistant engineers,	9						63 00	157 50		
Master mechanics of shops,	9						49 87	131 50		
General foremen of shops,	63						46 78	127 58		
Traveling engineer,	1							94 50		
Chief clerk of motive power,	1							130 99		
Road foremen,	55						51 97	85 05		
Clerks,	483		24		2		18 90	262 50	$15 75 to $21 00	$7 35 to $26 46
Road masters,	8						67 98	157 50		
Draughtsmen,	5						52 50	106 31		
Telegraph repairsmen,	18						63 00	63 15		
Telegraph operators,	232				2		10 50	89 25	10 50 to 31 50	
Ticket agents,	334				5		3 41	135 45	9 45 to 17 96	
General agents,	6						127 58	219 75		
Depot masters,	5						47 25	55 28		
Yard masters,	3						50 40	76 65		
Train masters,	7						42 00	84 00		
Teamsters and stablemen,	130		19				12 60	68 25		15 12
Train dispatchers,	70						42 00	131 50		
Locomotive drivers,	469						70 87	85 05		
Stationery engineers,	56	$1 28 to $2 70	2				30 70	51 03		26 25
Conductors, (passenger,)	90	1 70 to 3 52								
Conductors, (freight and coal,)	305	1 58 to 2 93								
Conductors, (ballast,)	12						59 58	60 90		
Brakemen,	1,260	1 28 to 2 31					28 87	49 61		
Firemen,	474	1 05 to 2 38	1	$1 20						
Watchmen,	592						17 96	59 53		
Express messengers,	32						5 10	68 04		
Depot hands,	293	1 05 to 1 84	10	$0 53 to 89	7	$0 95 to $1 32				
Baggage masters,	80	1 68 to 2 36								
Bridge builders, carpenters, and car builders,	907	1 23 to 2 34	27	50 to 1 00						

Philadelphia and Reading Railroad Company—Continued.

OCCUPATION AND CLASSIFICATION.	Men.	Pay per day.	Boys.	Pay per day.	Women.	Pay per day.	Average pay of men per month.		Pay of women per month.	Pay of boys per month.
Masons,	51	$1 94 to $2 36	1	$0 50						
Time-keepers,	4						$46 72	$59 58		
Blacksmiths and helpers,	242	1 42 to 3 08	15	$0 50 to 1 00						
Machinists,	471	1 38 to 2 55	114	50 to 1 00						
Molders,	49	1 47 to 2 63	11	50 to 1 00						
Boiler-makers,	82	1 38 to 2 36	14	50 to 1 00						
Tinners,	43	1 51 to 2 13	6	50 to 1 00						
Plumbers,	3						47 25	63 00		
Coppersmiths,	10	1 37 to 2 55								
Laborers,	3,598	95 to 1 86	14	62 to 1 05						
Switch tenders,	120						23 21	38 27		
Painters,	56	1 28 to 2 13	5	50 to 1 00						
Office and car cleaners,	39		1	42	91	$0 53 to $1 58	4 73	73 50	$4 73 to $31 66	
Policemen,	13						52 50	73 50		
Slll scale and mine inspectors,	6						39 37	106 31		
	10,801		264		107					

REMARKS.—In addition to its own line, the following roads are worked or leased by the company, viz: Philadelphia and Chester, 14 miles; Philadelphia, Germantown and Norristown, $29\frac{7}{10}$ miles; Chestnut Hill, 4 miles; Chester Valley, $21\frac{5}{10}$ miles; Pickering Valley, $11\frac{3}{10}$ miles; Colebrookdale, $12\frac{8}{10}$ miles; East Pennsylvania, 36 miles; Allentown, $4\frac{5}{10}$ miles; Berks and Lehigh, $41\frac{2}{10}$ miles; Little Schuylkill, $28\frac{1}{10}$ miles; Mine Hill and Schuylkill Haven, $53\frac{7}{10}$ miles; Mount Carbon and Port Carbon, $2\frac{5}{10}$ miles; Mill Creek and Mine Hill, $3\frac{8}{10}$ miles; Schuylkill Valley, 11 miles; East Mahanoy, $10\frac{7}{10}$ miles; Catawissa and Williamsport, $92\frac{6}{10}$ miles; North Pennsylvania, $86\frac{4}{10}$ miles; Delaware and Bound Brook, $30\frac{7}{10}$ miles.

February 5, 1880.

F. B. GOWEN, *President.*

Northern Central Railway.

Baltimore, Maryland, to Sunbury, Pennsylvania.

OCCUPATION AND CLASSIFICATION.	Men.	Pay per day.	Boys.	Pay per day.	Women.	Pay per day.	Average hours worked per day.	Pay of men per month.	Pay of women per month.	Pay of boys per month.
Conducting Transportation:										
Clerks,	74	$1 67						$50 00		
Chief telegraph operators,	1	3 33						100 00		
Telegraph operators,	41	1 37						41 00		
Passenger and freight agents,	41	1 50						45 00		
Depot masters,	1	2 83						85 00		
Train masters,	4	3 70						111 00		
Train dispatchers,	5	3 00						90 00		
Conductors, passenger,	10	2 50						75 00		
Conductors, freight,	41	2 17						65 00		
Brakemen, passenger,	10	1 33						40 00		
Brakemen, freight,	48	1 39						43 00		
Janitor,	1	1 50			1			45 00	$5 00	
Watchmen,	16	1 17						35 00		
Baggage masters,	9	1 50						45 00		
Switch tenders,	18	1 20						36 00		
Baggage porters,	6	1 10						33 00		
Policemen,	3	1 44						43 33		
Gatemen,	3	1 50						45 00		
Attending ladies' room,					2	$0 97			29 00	
Cleaning rooms,					3	75			22 67	
Cleaning depot,	1	1 10						33 00		
Messengers,	13	63						18 83		
Coopers,	1	1 83						55 00		
Weigh-masters,	2	1 33						40 00		
Laborers,	17	1 15						34 47		
Drivers,	14	1 50						45 00		
Stable boss,	1	2 00						60 00		
Blacksmith,	1	2 00						60 00		
Blacksmith's helpers,	1	1 33						40 00		
Hostlers,	4	1 13						33 75		
Warehousemen,	5	1 06						31 80		
Cargo inspectors,	3	1 33						40 00		
Lineman,	1	1 67						50 00		
Maintenance of Way:										
Supervisors,	4	3 00					10	90 00		
Assistant supervisors,	1	2 00					10	60 00		
Clerk,	1	2 00					10	60 00		
Track foremen,	39	1 50					10	45 00		
Assistant track foremen,	20	1 20					10	31 20		
Trackmen,	344	1 00					10	26 00		
Pavers,	2	1 20					10	31 20		
Station cleaners,	5	27					10	8 00		
Watchmen,	66	90					12	27 00		
Switchmen,	7	1 00					12	30 00		
Station keeper,	1	1 20					10	36 00		
Conductors, work train,	4	2 17					10	65 00		
Flagmen and brakemen, work train,	4	1 50					10	45 00		
Pumpers,	2	1 50					10	45 00		
Mail carrier,	1	13					10	4 00		
Master carpenter,	1	3 00					10	90 00		
Foremen, carpenters,	3	2 50					10	65 00		
Foremen, laborers,	1	1 50					10	39 00		
Common laborers,	38	1 20					10	31 20		
Carpenters,	39	2 00					10	52 00		
Foremen, masons,	3	2 70					10	70 20		
Masons,	20	2 50					10	65 00		
Foreman, quarrymen,	1	2 70					10	70 20		
Quarrymen,	9	1 20					10	31 20		
Blacksmiths,	4	2 50					10	65 00		
Blacksmiths' helper,	1	1 44					10	37 44		
Painters,	6	1 80					10	46 80		
Telegraph repairmen,	1	1 04					10	27 00		
Motive Power:										
Master mechanics,	2	3 42					10	102 50		
General foreman,	1	4 00					10	120 00		
Foremen,	16	2 19					10	65 65		
Road foremen of engines,	2	4 00					10	120 00		

Northern Central Railway—Continued.

OCCUPATION AND CLASSIFICATION.	Men.	Pay per day.	Boys.	Pay per day.	Women.	Pay per day.	Average hours worked per day.	Pay of men per month.	Pay of women per month.	Pay of boys per month.
Motive Power—Continued:										
Assistant road foremen of engines,	1	$2 00					10	$60 00		
Motive power clerk,	1	3 33					10	100 00		
Clerks,	11	1 68					10	50 45		
Engine preparers,	7	1 76					10	52 86		
Assistant engine preparers,	19	1 23					10	36 76		
Car inspectors,	40	1 27					10	38 10		
Car cleaners,	6	1 30			7	$0 90	10	36 00	$27 00	
Riggers,	2	1 71					10	51 30		
Watchmen,	4	1 15					10	34 50		
Machinists,	46	1 84					10	55 20		
Machinists' helpers,	27	1 21					10	36 30		
Machinists' apprentices,			14	$0 88			10			$25 40
Blacksmiths,	36	1 79					10	53 70		
Blacksmiths' helpers,	43	1 27					10	38 10		
Blacksmiths' apprentices,			2	80			10			24 00
Boiler-makers,	18	1 74					10	52 20		
Boiler-makers' helpers,	19	1 15					10	34 50		
Tinners,	17	1 68					10	50 40		
Tinners' helpers.	1	1 10					10	33 00		
Tinners' apprentices,			2	1 00			10			30 00
Coppersmiths,	3	1 77					10	53 10		
Carpenters,	170	1 81					10	54 30		
Carpenters' apprentices,			2	98			10			29 40
Laborers, carpenter shop,	22	1 10					10	33 00		
Trimmers,	3	2 00					10	60 00		
Painters,	49	1 69					10	50 70		
Painters' apprentices,			1	70			10			21 00
Laborers, paint shop,	3	1 10					10	33 00		
Oil distributors,	3	1 14					10	34 20		
Coal men,	23	1 09					10	32 70		
Grinders,	1	1 30					10	39 00		
Laborers,	23	1 10					10	33 00		
Engine cleaners,	17	1 10					10	33 00		
Stationary engineers and firemen,	5	1 26					10	37 80		
Passenger enginemen,	10	2 89					10	86 70		
Passenger firemen,	10	1 46					10	43 80		
Freight enginemen,	44	2 92					10	87 60		
Freight firemen,	49	1 60					10	48 00		
Distributing enginemen,	3	2 70					10	81 00		
Distributing firemen,	3	1 40					10	42 00		
Yard enginemen,	30	2 44					10	73 20		
Yard firemen,	30	1 41					10	42 30		

MANUFACTURES.—LUMBER.

By whom Operated.	County.	Whole number of persons employed.	Value of annual product.	Amount paid for material used in business.	Amount paid annually for wages of employees.	Hours worked per day.	Weeks in operation during the year.	Goods manufactured.
Union Planing Mill, Sash and Door Manufactory,	Allegheny,	40	$100,000 00	. . . . .	$26,000 00	10	52	Doors, sash, shutters, frames, &c.
Blake & Lacy,	do.	81	120,000 00	$80,000 00	30,000 00	10	52	Doors, sash, boxes, planing-mill, &c.
Hill & Patterson,	do.	10	. . . . .	. . . . .	5,701 00	. . .	. . .	Doors, sash, frames, shutters, &c.
Hope Planing Mill, D. O. Cunningham,	do.	22	50,000 00	36,000 00	9,000 00	10	40	Lumber, shingles, and lath.
Stoner & McClure,	do.	11	110,000 00	65,000 00	25,000 00	. . .	. .	Nail kegs and boxes.
Graham & Farmerie,	do.	13	. . . .	12,000 00	8,000 00	10	40	Lumber.
S. P. & I. N. Large,	do.	31	40,000 00	20,000 00	12,000 00	10	36	Lumber, lath, and barges.
Jacob Ritter & Co.,	do.	4	186 25	22 25	39 00	. . .	2	Custom work.
A. S. Mundorff,	do.	25	38,872 00	26,631 94	7,807 54	10	45	Planing-mill, sash and door factory, lumber.
Murphy, McCain & Co.,	Armstrong,	16	60,000 00	55,000 00	10,000 00	9	50	Flooring, siding, doors, barges, &c.
Hielman Brothers,	do.	. . .	16,000 00	30,000 00	8,000 00	. . .	. . .	Planing-mill, contractors and builders.
Jeff. Hill & Co.,	do.	6	600 00	. . . . .	. . . . .	10	3	Saw-mill, custom work.
J. S. Quigley & Son,	do.	1	2,000 00	1,000 00	500 00	. . .	. . .	Saw and shingle-mill, and keg staves.
P. C. Hetrick,	do.	5	. . . . .	. . . . .	. . . . .	8	25	Saw-mill.
S. C. B. & J. G. Kimmel,	do.	1	. . . . .	. . . . .	. . . . .	8	. . .	Saw-mill, custom work.
Wilkins & Fullerton,	do.	3	1,020 00	575 00	270 00	8	12	Saw-mill.
G. W. Wilkins,	do.	48	60,000 00	48,000 00	10,000 00	10	36	Planing-mill, box factory, and coal barges.
David Rearich,	do.	1	200 00	10 00	. . . . .	. . .	13	Saw-mill.
Cyrus K. Slease,	do.	. . .	500 00	100 00	150 00	. .	26	Steam saw-mill, custom work.
John F. Amment,	do.	1	130 00	12 00	65 00	8	8	Sash.
Isaac Fair,	do.	. .	500 00	100 00	50 00	. . .	8	Lumber, lath.
Lasher & Gahagen,	do.	1	1,500 00	300 00	200 00			
Nyeum & Brother,	Bedford,	2	5,525 00	4,5.2 50	873 00	. . .	. . .	Planing-mill.
John B. Fluck,	do.	3	2,400 00	800 00	500 00	8	34	Saw and planing-mill, sash, doors, &c.
C. R. & H. Himmelwright,	Cambria,	4	2,500 00	500 00	1,000 00	. . .	. . .	Lumber and shingles.
D. & C. Moore,	do.	10	4,678 69	. . . . .	. . . . .	10	52	Lumber, shingles, laths, paling, &c.
A. A. Barker & Son,	do.	8	3,500 00	1,700 00	1,300 00	10	26	Oak sawed staves and shooks.
Thomas Duncan,	do.	2	800 00	50 00	500 00	. . .	. . .	Lumber.
Michael Bracken,	do.	16	10,997 11	1,625 60	5,174 40	10	43	Lumber.
Black Lick Navigation and Improvement Company,	do.	25	20,000 00	. . . . .	8,000 00	10	52	Lumber.
Porter Kimports,	do.	4	3,000 00	. . . . .	1,000 00	10	20	Lumber.
Benjamin Benshoff,	do.	17	. . . . .	. . . . .	4,981 50	10	45	Lumber.
F. Vowinckel & Co.,	do.	30	25,000 00	6,000 00	12,400 00	10	52	Lumber.

Lumber—Continued.

BY WHOM OPERATED.	COUNTY.	Whole number of persons employed.	Value of annual product.	Amount paid for material used in business.	Amount paid annually for wages of employees.	Hours worked per day.	Weeks in operation during the year.	Goods manufactured.
E. D. Sizer,	Cameron,	12	. . . . .	. . . . .	. . . . .	10	35	Lumber.
I. S. Wiley,	do.	20	$12,000 00	$2,000 00	$3,000 00	. . .	. .	Lumber.
Kaul, Walker & Co.,	do.	25	50,000 00	5,000 00	10,000 00	11	52	Lumber, shingles, lath, and pickets.
G. A Barclay,	do.	11	. . . . .	. . . . .	. . . . .	11	. . .	Planing-mill, lumber and shingles.
Albert Lewis & Co.,	Carbon,	75	50,000 00	3,700 00	13,000 00	12	52	Planing, laths and shingles.
John T. Fowler,	Centre,	125	53,221 31	. . . . .	19,000 00	10	40	Lumber, railroad ties, &e.
T. J. Dunkel,	do.	10	. . . . .	. . . . .	. . . . .	. . .	. .	Lumber.
Hoover, Harris & Co.,	do.	120	. . . . .	. . . . .	40,000 00	10½	*41	Sash, doors, &e. (*Average.)
Isett & Stoke,	do.	15	. . . . .	. . . . .	5,000 00	11¾	16	Lumber, shingle, and pickets.
Bellefonte and Snow Shoe Railroad Company,	do.	. .	7,353 28	774 20	4,723 84	. .	. . .	Lumber.
Marvin, Rulofson & Co.,	Clarion,	20	30,400 00	. . . . .	10,000 00	12	52	Lumber and shingles.
John Metzger & Co.,	do.	10	. . . . .	10,000 00	3,500 00	. . .	. . .	Lumber and lath.
Hahn, Wagner & Curlls,	do.	43	19,125 00	4,000 00	9,650 00	10	. . .	Lumber, shingles, and lath.
A. J. Landers,	do.	11	5,300 00	. . . . .	1,356 37	10	15	Lumber and shingles.
D. K. Ramey & Co.,	Clearfield,	54	. . . . .	. . . . .	25,000 00	10	50	Lumber, shingle, and lath.
Homewood Mill Company, operating mill of D. Blanchard & Co.	Clinton,	86	. . . . .	900 00	9,266 00	11½	†	Lumber and kindling wood. († Foreman and shipper 52; others 22.)
Kreamer & Mann,	do.	30	81,000 00	. . . . .	6,000 00	1½	25	Lumber.
B. M. Sherwood & Son,	Crawford,	26	43,000 00	20,000 00	14,500 00	10	52	Lumber, sash, doors, &e.
Charles & R. A. Stratton,	do.	14	40,000 00	20,000 00	4,000 00	10	. . .	Lumber, shingle, and staves.
McQuiston & Co.,	do.	4	. . . . .	. . . . .	. . . . .	10	. . .	Lumber.
A. D. & J. P. Williams & Co.,	do.	4	3,600 50	473 00	679 39	10	39	Lumber and ash sucker rods.
A. Gilbert & Morgan,	do.	2	2,400 00	. . . . .	312 00	12	52	Lumber.
E. W. Shippen,	do.	7	2,400 00	700 00	. . . . .	9	16	Broom handles.
Octave Stave and Barrel Company,	do.	12	11,000 00	. . . . .	. . . . .	10	18	Oak staves and headings.
Nash & Co.,	do.	7	7,650 00	. . . . .	. . . . .	9	35	Shooks,
Freas Brothers,	Columbia,	24	. . . . .	. . . . .	6,000 00	12½	52	Lumber, shingles, and lath.
William Zeigler,	Cumberland,	20	15,000 00	. . . . .	. . .	10	20	Lumber.
Weaver & Co.,	Dauphin,	14	15,000 00	9,400 00	2,500 00	10	22	Lumber, shingles, lath, and pickets.
J. S. & W. H. Hyde,	Elk,	40	40,000 00	5,000 00	20,000 00	12	30	Lumber, shingles, and lath.
Oyster & Short,	Elk,	70	17,332 42	. . . . .	. . . . .	. . .	. . .	Lumber and shingles.
Davis & Hammond,	Erie.	40	24,000 00	. . . . .	. . . . .	. . .	. . .	Lumber, shingles, and lath.
T. D. Collins,	Forest,	30	28,000 00	. . . . .	. . . . .	11	. .	Lumber, shingles, and lath.
Root & Watson,	do.	10	10,000 00	. . . . .	2,338 35	11	21	Lumber.

Dickey, Darrah & Co.,	Forest,	12	13,200 00	. . . . .	. . . . .	. . .	. . .	Lumber, pickets.
James R. Daugherty,	Indiana,	8	9,000 00	7,472 00	3,100 00	. . .	. . .	Sash, doors, flooring, coffins, and caskets.
G. T. Jones,	do.	4	18,500 00	17,500 00	. . . . .	10½	. . .	Lumber, shingle, lath, and custom work.
F. Lamorex,	Lackawanna,	3	3,620 00	400 00	560 00	. . .	. . .	Lumber.
Eugene Snyder,	do.	10	25,000 00	. . . . .	. . . . .	10	. . .	Lumber, shingles.
J. D. Kizer & Son,	do.	3	1,900 00	500 00	300 00	8	30	Lumber.
W. Dale & Son,	do.	14	21,160 00	12,000 00	4,550 00	10	47	Lumber and lath.
Harvey Bros. & Co.,	Luzerne,	10	. . . . .	. . . . .	. . . . .	10	. . .	Doors, sash, and general mill work.
C. & S. V. Lee,	do.	5	. . . . .	3,000 00	1,800 00	8	. . .	Lumber, shingles, and lath.
Brown, Earley & Co.,	Lycoming,	70	. . . . .	. . . . .	. . . .	10	. .	Lumber.
McClary & Buck,	do.	36	100,000 00	7,600 00	10,000 00	10	20	Lumber and lath.
Gilman & Co., (Empire Mills,)	do.	54	62,500 00	40,000 00	12,000 00	10	52	Frames, sash, doors, flooring, ceilings, mouldings, boxes, &c.
P. B. Merrill & Co.,	do.	65	. . . . .	. . . . .	. . . . .	11	20	Lumber and lath.
H. M. & John B. Otto,	do.	7	54,861 72	. . . . .	2,800 00	10	. . .	Lumber.
Payne & Co.,	do.	87	200,000 00	125,000 00	2,500 00	10	25	Lumber and lath.
Howard, Perley & Howard,	do.	57	95,000 00	62,500 00	. . . . .	10	25	Lumber.
Woolverton & Tinsman,	do.	60	132,000 00	1,751 00	19,800 00	11	32	Lumber and lath.
Jacob Edler,	do.	11	4,870 64	520 00	1,500 00	10	32	Lumber, staves, and headings.
Bodine, Warn & Co.,	do.	11	7,550 00	. . . .	. . . . .	11	16	Lumber.
George Edkin,	do.	3	2,150 00	300 00	477 50	10	26	Lumber and shingles.
D. Clapp & Co.,	do.	36	70,000 00	5,000 00	7,000 00	11	30	Lumber, shingles, and lath.
Jacob D. Budman,	do.	3	1,000 00	20 00	200 00	. . .	. . .	Lumber, lath.
Robert M. Bigger,	do.	16	3,125 00	1,000 00	1,600 00	11	16	Lumber, shingles, and lath.
D. D. Gordnern,	do.	2	. . . . .	. . . . .	50 00	. . .	. . .	Lumber.
Joseph O. Kreamer,	do.	2	300 00	. . . . .	30 00	11	10 ds.	Lumber.
John Fry,	do.	4	825 00	50 00	167 50	12	30 ds.	Shingles.
W. H. Keller & Sons,	Mifflin,	. . .	2,000 00	600 00	. . . . .	. .	. . .	Lumber, custom work.
Ritter & Beck,	Northampton,	10	12,000 00	5,500 00	4,000 00	10	45	Lumber, frames, sash, doors, &c.
Ira T. Clement,	Northumberland,	85	. . . . .	. . . . .	30,000 00	10	52	Lumber.
Cook & Pardee,	do. do.	30	60,000 00	42,000 00	8,000 00	10	32	Lumber.
J. A. Bogordes,	Potter,	3	. . . . .	225 00	500 00	10	52	Shingles.
Chapin & Ransom,	do.	6	. . . . .	. . . . .	. . . .	10	40	Lumber and shingles.
Farnham, Dodge & Dalrymple,	do.	2	600 00	. . . . .	200 00	10	12	Shingles.
L. W. Crawford,	do.	4	. . . . .	. . . . .	. . . .	. . .	. . .	Lumber, planing, and shingles.
Hassinger, Walter & Co.,	Snyder,	16	19,800 00	7,700 00	6,290 00	10	45	Lumber.
G. W. & J. B. Brown,	Sullivan,	2	. . . . .	. . . . .	. . . . .	12	5	Lumber.
Walter Spencer,	do.	7	1,000 00	400 00	250 00	11	6	Lumber.
Reeser & Martin,	do.	10	3,000 00	. . . . .	827 00	10	20	Lumber.
Jonathan Rogers,	do.	4	. . . . .	. . . . .	. . . . .	. . .	. . .	Lumber.
Jacob Lorch & Co.,	do.	16	8,000 00	. . . . .	4,500 00	. . .	. . .	Lumber and shingles.
Lovell & Tanner,	Tioga,	5	400 00	. . . . .	. . . .	. .	. . .	Shingles.
Stayman & Zimmerman,	Union,	8	6,000 00	3,000 00	2,400 00	10	. . .	Lumber.
Martin & Davis,	Warren,	10	. . . . .	. . . . .	. . . . .	10	19	Lumber and lath.
S. V. & S. H. Davis,	do.	. . .	. . . . .	. . . . .	. . . . .	. . .	. .	Lumber.
Grandin & Slater,	do.	15	15,000 00	. . . . .	4,500 00	10	15	Lumber and lath.
Bucher, Maultby & Co.,	do.	5	5,400 00	3,700 00	1,100 25	10	25	Staves and headings and bolts.
John Slater,	do.	15	. . . . .	. . . . .	. . . . .	. . .	. . .	Lumber.
Henry Baxter,	do.	18	. . . . .	2,000 00	2,000 00	11	40	Lumber.
Rockwell & Co.,	do.	12	20,000 00	10,000 00	3,000 00	11	29	Lumber.
Lewis Bates,	do.	3	1,000 00	25 00	240 00	. . .	. . .	Lumber and shingles.
I. S. & D. H. Donaldson,	do.	4	1,200 00	400 00	550 00	10	20	Lumber and lath.
Hyde & Skiff,	do.	4	3,500 00	625 00	1,310 00	10	. . .	Lumber and shingles.

Lumber—Continued.

BY WHOM OPERATED.	COUNTY.	Whole number of persons employed.	Value of annual product.	Amount paid for material used in business.	Amount paid annually for wages of employees.	Hours worked per day.	Weeks in operation during the year.	Goods manufactured.
D. Henry,	Warren,	5	$1,000 00	$312 50	$300 00	10	. . .	Lumber and lath.
M. Bristol, junior,	do.	6	. . . . .	. . . . .	. . . . .	10	. . .	Lumber.
M, Venus,	do.	3	1,000 00	. . . . .	200 00	10	4	Lumber, (custom work.)
Morrison Bros.,	do.	23	6,090 00	2,980 00	2,424 00	10&12½	16	Lumber and shingles.
L. B. Wood & Co.,	do.	50	40,000 00	. . . . .	20,000 00	. . .	. . .	Lumber and shingles.
Imel & Gordon,	do.	20	10,500 00	. . . . .	4,500 00	12	17	Lumber, (custom work.)
Peter Holt,	do.	8	1,650 00	. . . . .	1,000 00	9	13	Lumber and shingles.
George W. Quaints & Bros.,	do.	5	1,000 00	. . . . .	200 00	12	16	Lumber.
Gilbert, Turner & Son,	do.	4	4,180 00	2,600 00	. . . . .	10	26	Lumber.
Thomas I. Baker,	do.	3	450 00	30 00	. . . . .	10	10	Lumber and lath.
Goodwin Bros.,	do.	. . .	3,000 00	25 00	75 00	12	20	Lumber.
R. Stewart,	do.	7	8,750 00	150 00	250 00	10	26	Lumber, shingles, headings, and staves.
Benjamin & Hills,	do.	10	. . . . .	. . . . .	2,100 00	10	48	Lumber.
E. W. Ross & Son,	do.	40	18,000 00	3,000 00	12,000 00	11	36	Lumber, shingles, and lath.
W. M. Haggerty,	do.	6	. . . . .	4,175 45	. . . . .	. . .	10	Custom work.
H. Hazeltine & Son,	do.	10	4,000 00	1,500 00	2,000 00	10	39	Lumber.
A. W. Jones,	do.	. . .	1,200 00	. . . . .	100 00	. . .	22	Custom work.
Wesley Milspan,	do.	7	4,000 00	100 00	2,500 00	10	20	Lumber.
Orris Hall,	do.	15	15,600 00	7,800 00	4,867 20	. . .	26	Lumber.
John McNair & Co.,	do.	21	. . . . .	1,000 00	6,000 00	10	52	Lumber.
J. W. Agrelius & Co.,	do.	5	15,000 00	11,000 00	1,500 00	10	40	Staves, headings, and shingles.
Brace & Bowman,	do.	5	15,672 83	9,832 67	1,300 00	10	44	Staves, headings, and shingles.
Patch & Walters,	do.	11	8,000 00	5,000 00	1,500 00	10	40	Staves, headings, and shingles.
Johnson & Eldred,	do.	3	. . . . .	. . . . .	700 00	. . .	40	Lumber and shingles.
E. E. James,	do.	23	9,750 00	4,000 00	3,000 00	. .	. . .	Staves, headings, lumber, &e.
C. Chase,	do.	4	5,000 00	1,500 00	300 00	10	52	Lumber, shingles, and lath.
Miekle & Phillis,	do.	10	7,200 00	1,000 00	3,480 00	10	40	Lumber and shingles.
F. B. Hayward, (Star Mill,)	do.	3	3,500 00	3,000 00	300 00	8	12	White oak staves.
C. A. Trisket,	do.	5	. . . . .	. . . . .	. . . . .	. . .	. . .	Shingles.

Lumber—Continued.

BY WHOM OPERATED.	White pine.	Hemlock.	Cherry.	Ash.	Birch.	Maple.	Chestnut.	Walnut.	Oak.	Other lumber.	Total value.
	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	
Union Planing Mill, Sash and Door Manufact'y,	3,500,000	300,000									$54,700 00
Blake & Lacy,	4,500,000	1,000,000				50,000					70,700 00
Hill & Patterson,	22,500									35,000	4,050 00
Hope Planing Mill, D. O. Cunningham,	2,000,000	500,000						20,000			33,000 00
Stoner & McClure,	2,500,000	2,500,000									110,000 00
S. P. & I. N. Large,	750,000	120,000							80,000		18,040 00
Jacob Ritter & Co.,									32,061	116	172 37
A. S. Mundorff,	1,000,000	200,000									14,800 00
Murphy, McCaln & Co.,	3,000,000	300,000							100,000		49,500 00
Hielman Brothers,										825,000	19,500 00
Jeff, Hill & Co.,	5,000	18,000	300					500	20,000		609 00
J. S. Quigley & Son,	50,000	60,000	30,000								1,500 00
P. C. Hetrick,	50,000	25,000									
S. C. B. & J. G. Kimmel,									12,000		
Wilkins & Fullerton,	25,000	10,000							30,000	500	1,020 00
G. W. Wilkins,	1,350,000								1,350,000		43,200 00
David Rearich,		10,000				200			9,800		
Cyrus K. Slease,		2,000							100,000		1,020 00
John F. Amment,										11,000	110 00
Isaac Fair,	10,000	20,000							20,000		600 00
Lasher & Gahagen,	3,000	10,000							3,000		
Nycum & Brother,	170,000	60,000									3,620 00
John B. Fluck,	5,000	2,500		500		1,300			2,000	1,800	1,000 00
C. R. & H. Himmelwright,	50,000	100,000								40,000	1,400 00
D. & C. Moore,	73,741	320,348									4,209 59
Thomas Duncan,		40,000									
Michael Bracken,	10,553	1,450,350				41,213				13,523	10,997 11
Black Lick Navigation and Improvement Co.,		1,500,000				500,000					20,000 00
Porter Kimports,	200,000	50,000							50,000		3,000 00
Benjamin Benshoff,										1,080,000	
F. Vowinckel & Co.,	2,000,000	300,000									25,000 00
E. D. Sizer,	30,000	1,000,000		1,000		5,000			50,000	10,000	11,000 00
I. S. Wiley,	600,000	800,000									
Kaul, Walker & Co.,	2,000,000	500,000							500,000		41,000 00
G. A. Barclay,	700,000	500,000									11,400 00
Albert Lewis & Co.,	500,000	4,000,000								250,000	44,000 00
John T. Fowler,	1,800,582	900,291							900,291		47,715 41
T. J. Dunkel,	500,000								400,000	50,000	9,900 00
Hoover, Harris & Co.,	4,817,889	2,049,042				13,148			363,426	4,486,343	166,166 55
Isett & Stoke,	379,009	468,653		120		1,372	1,108		146,247	1,811	10,207 32

Lumber—Continued.

BY WHOM OPERATED.	White pine.	Hemlock.	Cherry.	Ash.	Birch.	Maple.	Chestnut.	Walnut.	Oak.	Other lumber.	Total value.
	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	
Bellefonte and Snow Shoe Railroad Company,	600,000	258,881									$7,353 28
Marvin, Rulofson & Co.,	3,000,000										30,000 00
John Metzger & Co.,	50,000	200,000									2,100 00
Hahn, Wagner & Curlls,	2,000,000	500,000									18,500 00
A. J. Landers,	1,000,000	15,000									4,100 00
D. K. Ramey & Co.,	5,000,000	1,800,000							200,000		
Kreamer & Mann,	3,901,221	1,225,056							16,922	1,630,629	81,066 00
B. M. Sherwood & Son,	200,000	1,000,000	110,000	800,000		10,000	44,000		72,000	235,000	43,000 00
Charles & R. A. Stratton,	200,000	50,000							300,000	120,000	11,300 00
McQuiston & Co.,										75,000	
A. D. & J. P. Williams & Co.,		32,917	3,520	20,000		10,000				102,388	3,650 00
A. Gilbert & Morgan,		300,000									2,400 00
Freas Brothers,	1,200,000	300,000		3,000							33,060 00
William Zeigler,				10,000							
Weaver & Co.,	214,425	300,000							10,000	6,000	8,818 50
J. S. & W. H. Hyde,	3,000,000	1,000,000									
Oyster & Short,	1,397,500	36,000									16,997 42
Davis & Hammond,	800,000	1,200,000	50,000	100,000	20,000	40,000					24,700 00
T. D. Collins,	2,200,000	300,000							100,000		25,500 00
Root & Watson,	1,000,000										10,000 00
Dickey, Darrah & Co.,	25,000										
James R. Daugherty,	250,000	10,000									3,500 00
G. T. Jones,	*800,000	*600,000					*12,500		*40,000	*11,000	15,088 75
F. Lamorex,	10,000	150,000		3,000	50,000	75,000			11,000	10,000	3,520 20
Eugene Snyder,	10,000	400,000	2,000	10,000	20,000	20,000				75,000	5,000 00
J. D. Kizer & Son,		250,000			200,000	400,000					
W. Dale & Son,		3,000,000				80,000				120,000	20,160 00
C. & S. V. Lee,	100,000										2,000 00
Brown, Earley & Co.,	9,400,000	600,000									
McClary & Buck,	5,500,000	5,000,000	10,000								95,150 00
Empire Mills, Gilman & Co.,	6,000,000	250,000	10,000	15,000		10,000				260,000	182,200 00
P. B. Merrill & Co.,	8,000,000										
H. M. & J. B. Otto,	3,714,402										54,861 72
Payne & Co.,	12,000,000										200,000 00
Howard, Perley & Howard,	7,000,000	2,000,000									
Woolverton & Tinsman,	9,500,000	500,000									127,000 00
Jacob Edler,	100,000	50,000									1,500 00
Bodine, Warn & Co.,	25,000	1,000,000								25,000	7,550 00
George Edkin,	30,000	200,000			10,000				10,000	20,000	1,450 00
D. Clapp & Co.,	1,500,000	500,000							500,000		37,000 00

Jacob D. Budman,		150,000							40,000		$920 00
Robert M. Bigger,		400,000								†25,000	2,700 00
D. D. Gordnern,		50,000									250 00
Joseph O. Kreamer,		25,000							15,000		300 00
W. H. Keller & Sons,	15.000										315 00
Ritter & Beck,	150,000			5,000		3,000		6,000	5,000		5,500 00
Ira T. Clement,	1,000,000	500,000							350,000		31,000 00
Cook & Pardee,	2,500,000	500,000		500,000		500,000					60,000 00
Chapin & Ransom,		1,000,000	20,000	20,000		20,000				20,000	5,800 00
L. W. Crawford,		500,000									
Hassinger, Walker & Co.,									1,100,000		19,800 00
G. W. & J. B. Brown,			40,000	1,000		3,000					234 00
Walter Spencer,		110,000	2,000	3,000	5,000						993 00
Martin & Reeser,		300,000				150,000					3,000 00
Jonathan Rogers,		*550,000									2,475 00
Jacob Loreh & Co.,		600,000		50,000		100,000				25,000	8,000 00
Stayman & Zimmerman,	36,000			1,500					12,000		930 00
Martin & Davis,	500,000	35,000							65,000		4,695 00
S. V. & S. H. Davis,	300,000										4,000 00
Grandin & Slater,	1,000,000										15,000 00
John Slater,	550,000								75,000		6,800 00
Henry Baxter,	3,000,000										36,000 00
Rockwell & Co.,	300,000	1,000,000	30,000	100,000		20,000				700,000	20,500 00
Lewis Bates,	50,000										500 00
I. S. & D. H. Donaldson,		200,000									1,200 00
Hyde & Skiff,	50,000		6,250	8,000							1,000 00
D. Henry,		250,000									1,000 00
M. Bristol, junior,		160,000									800 00
M. Venus,	75,000	20,000		4,000							930 00
Morrison Brothers,	250,000	400,000	10,000	50,000		10,000					5,820 00
L. B. Wood & Co.,	1,000,000	2,000,000									27,000 00
Imel & Gordon,	400,000	450,000									9,3.5 00
Peter Holt,	325,000	50,000									3,875 00
George W. Quaints & Brothers,		150,000				50,000					1,000 00
Gilbert Turner & Son,		800,000								20,000	4,180 00
Thomas I. Baker,	50,000	75,000		3,000						10,000	965 00
Goodwin Brothers,		500,000									3,000 00
R. Stewart,	100,000	200,000					25,000			25,000	4,300 00
Benjamin & Hills,	100,000	800,000									5,400 00
E. W. Ross & Son,	1,500,000	200,000									19,000 00
W. M. Haggerty,		165,018									330 00
H. Hazeltine & Son,	50,000	150,000		5,000		5,000	100,000		40,000	50,000	4,000 00
A. W. Jones,		200,000					20,000				1,150 00
Wesley Milspau,	25,000	625,000		15,000							4,305 00
Orris Hall,	1,560,000										15,600 00
John McNair & Co.,	30,000	1,000,000	50,000	25,000		5,000					5,550 00
Johnson & Eldred,	75,000	300,000	75,000	25,000							4,650 00
E. E. James,	200,000	10,000								1,000	3,050 00
C. Chase,	50,000	50,000		5,000						5,000	1,100 00
Mickle & Phillis,	200,000	500,000									5,200 00

* Average. † Hemlock flooring.

Recapitulation.

COUNTY.	White Pine	Hemlock.	Cherry.	Ash.	Birch.	Maple.	Chestnut.	Walnut.	Oak.	Other lumber.
	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.
Allegheny,	14,272,500	4,620,000	.....	.....	.....	50,000	.....	20,000	112,061	35,116
Armstrong,	4,493,000	455,000	30,300	.....	.....	200	.....	500	1,644,800	836,500
Bedford,	175,000	62,500	.....	500	.....	1,300	.....	.....	2,000	1,800
Cambria,	2,334,294	3,760,728	.....	.....	.....	541,213	.....	.....	50,000	1,133,523
Cameron,	3,330,000	2,800,000	.....	1,000	.....	5,000	.....	.....	550,000	10,000
Carbon,	500,000	4,000,000	.....	.....	.....	.....	.....	.....	.....	250,000
Centre,	8,097,480	3,676,867	.....	120	.....	14,520	1,108	.....	1,809,964	4,538,154
Clarion,	6,050,000	715,000								
Clearfield,	5,000,000	1,800,000	.....	.....	.....	.....	.....	.....	200,000	
Clinton,	3,901,221	1,225,056	.....	.....	.....	.....	.....	.....	16,922	1,630,629
Crawford,	400,000	1,382,917	113,520	820,000	.....	20,000	44,000	.....	372,000	532,388
Columbia,	1,200,000	300,000	.....	3,000						
Cumberland,	.....	.....	.....	10,000						
Dauphin,	214,425	300,000	.....	.....	.....	.....	.....	.....	10,000	6,000
Elk,	4,397,500	1 036,000								
Erie,	800,000	1,200,000	50,000	100,000	20,000	40,000				
Forest,	3,225,000	300,000	.....	.....	.....	.....	.....	.....	100,000	
Indiana,	1,050,000	610,000	.....	.....	.....	.....	12,500	.....	40,000	11,000
Lackawanna,	20,000	3,800,000	2,000	13,000	225,000	575,000	.....	.....	11,000	205,000
Luzerne,	100,000									
Lycoming,	62,769,402	10,725,000	20,000	15,000	10,000	10,000	.....	.....	565,000	330,000
Mifflin,	15,000									
Northampton,	150,000	.....	.....	5,000	.....	3,000	.....	6,000	5,000	
Northumberland,	3,500,000	1,000,000	.....	500,000	.....	500,000	.....	.....	350,000	
Potter,	.....	1,500,000	20,000	20,000	.....	20,000	.....	.....	.....	20,000
Snyder,	.....	.....	.....	.....	.....	.....	.....	.....	1,100,000	
Sullivan,	.....	1,590,000	42,000	54,000	5,000	253,000	.....	.....	.....	25,000
Union,	36,000	.....	.....	1,500	.....	.....	.....	.....	12,000	
Warren,	11,740,000	10,290,018	171,250	240,000	.....	90,000	145,000	.....	180,000	811,000
	137,770,822	57,149,086	449,070	1,783,120	260,000	2,123,233	202,608	26,500	7,130,747	10,376,110

By whom Operated.	Shingle.		Lath.		Staves and Headings.	Pickets.	Total value.
	Pine.	Hemlock.	Pine.	Hemlock.			
	Thousand.	Thousand.	Thousand.	Thousand.	Thousand.	Thousand.	
Union Planing Mill, Sash, and Door Manufactory,	1,500,000		100,000				$5,050 00
Blake & Lacy,	1,000,000		300,000				3,850 00
Hope Planing Mill, D. O. Cunningham,	1,000,000		250,000				3,000 00
S. P. & I. N. Large,			50,000				125 00
Jacob Ritter & Co.,				Oak, ft. 6,944			13 88
A. S. Mundorff,	400,000		75,000				1,570 00
Murphy, McCain & Co.,	1,000,000		1,000,000				5,500 00
J. S. Quigley & Son,	50,000		50,000				225 00
S. C. B. & J. G. Kimmel,			Oak, ft. 5,000				
G. W. Wilkins,	400,000		600,000				2,100 00
John F. Amment,				Oak, ft. 8,000			20 00
Isaac Fair,			40,000				100 00
Nyenm & Brother,	200,000		110,000				892 50
John B. Fluck,				2,000			45 00
C. R. & H. Himmelwright,	2 ft. 160,000	18 In. 200,000		20,000			1,095 00
D. & C. Moore,	88,250		11,420			17,260	369 10
A. A. Barker & Son,					225,000		av'e 3,500 00
Kaul, Walker & Co.,	500,000		800,000			200,000	6,500 00
G. A. Barclay,	150,000						750 00
Albert Lewis & Co.,	50,000	150,000		500,000		500,000	1,475 00
							‖4,525 00
John T. Fowler,	425,750		739,600			*	1,955 90
Hoover, Harris & Co.,	1,072,500		1,797,000			86,206	5,617 09
Isett & Stoke,			70,900			29,020	228 60
Marvin, Rulofson & Co.,	100,000						400 00
John Metzger & Co.,				50,000			100 00
Hahn, Wagner & Curlls,	200,000		150,000				625 00
A. J. Landers,	600,000						1,200 00
D. K. Ramey & Co.,	2,000,000		800,000				
Charles & R. A. Stratton,	200,000				1,200,000		28,700 00
Octave Stave and Barrel Company,					av'e 450,000		10,350 00
Nash & Co.,					†9,000		7,650 00
Freas Brothers,	480,000		600,000				2,580 00
Weaver & Co.,	1,104,800		100,000	23,000		47,000	6,181 50
J. S. & W. H. Hyde,	500,000		400,000				2,100 00
Oyster & Short,	134,000						335 00
Davis & Hammond,	700,000		400,000				1,975 00

Shingle, Lath.—Continued.

BY WHOM OPERATED.	SHINGLE.		LATH.		STAVES AND HEADINGS.	PICKETS.	Total value.
	PINE.	HEMLOCK.	PINE.	HEMLOCK.			
	Thousand.	Thousand.	Thousand.	Thousand.	Thousand.	Thousand.	
T. D. Collins,	300,000		800,000				$2,500 00
Diekey, Darrah & Co.,						50,000	400 00
James R. Daugherty,	30,000		20,000			15,000	236 00
G. T. Jones,	1,500,000		75,000	1,000,000			6,062 50
Eugene Snyder,				100,000			150 00
W. Dale & Son,				1,000,000			1,000 00
C. & S. V. Lee,	200,000		16,000				1,032 00
McClary & Buck,			500,000				750 00
P. B. Merrill & Co.,			2,000,000				
Payne & Co.,			3,500,000				5,250 00
Woolverton & Tinsman,			2,800,000				4,200 00
Jacob Edler,					859,458		3,683 96
George Edkin,	140,000						700 00
D. Clapp & Co.,	5,000,000		1,000,000				33,500 00
Jacob D. Budman,				150,000			225 00
Robert M. Bigger,	50,000	150,000		roofing 50,000			425 00
John Fry,	150,000						825 00
J. A. Bogordes,	1,500,000	500,000					3,375 00
Chapin & Ransom,		400,000					700 00
Farnham, Dodge & Dalrymple,	300,000						600 00
Jacob Lorch & Co.,		100,000					
Lovell & Tanner,		200,000					400 00
Martin & Davis,			220,000				308 00
Grandin & Slater,			250,000				375 00
Bucher, Maultby & Co.,					450,000	eords ‡900	9,000 00
Lewis Bates,	200,000	100,000					500 00
I. S. & D. H. Donaldson,			50,000	30,000			120 00
Hyde & Skiff,	1,000,000						2,500 00
D. Henry,				73,000			73 00
Morrison Brothers,	100,000	10,000					270 00
L. B. Wood & Co.,	3,000,000	5,000,000					13,000 00
Imel & Gordon,						eords §300	1,200 00
Peter Holt,	200,000	100,000					750 00
Thomas I. Baker,			10,000				20 00
R. Stewart,	100,000	00,000			260,000		4,450 00
E. W. Ross & Son,	500,000		600,000				5,400 00
W. M. Haggerty,	100,000				280,000		4,300 00

J. W. Agrelius & Co.,	1,200,000				800,000		15,000 00
Brace & Bowman,	1,614,000				756,794		14,436 78
Patch & Walters,	100,000				425,000		8,050 00
Johnson & Eldred,	700,000						1,500 00
E. E. James,	500,000				540,000		6,700 00
C. Chase,	200,000	200,000	20,000				840 00
Mickle & Phillis,	500,000	500,000					2,000 00
Star Mill, (F. B. Hayward,)					200,000		3,000 00
C. A. Trisket,	300,000	1,000,000					1,925 00

* Wood and ties furnished railroad company, $1,000; bark—oak and hemlock, $2,550; Total, $3,550.
† Shooks, bunches.
‡ Oak bolts.
§ Hemlock bark.
‖ Bark, &c.

In addition to the above, there is of

Oak lath, 19,944 feet.
Shooks, 9,000 bunches.
Oak bolts, 900 cords.
Hemlock bark, 300 cords.

RECAPITULATION.

COUNTY.	SHINGLES.		LATH.		STAVES AND HEADINGS.	PICKETS.
	PINE.	HEMLOCK.	PINE.	HEMLOCK.		
	Thousand.	Thousand.	Thousand.	Thousand.	Thousand.	Thousand.
Allegheny,	3,900,000	.....	775,000			
Armstrong,	1,450,000	.....	1,690,000			
Bedford,	200,000	.....	110,000	2,000		
Cambria,	248,250	200,000	11,420	20,000	225,000	17,260
Cameron,	650,000	.....	800,000	.....	.....	200,000
Carbon,	50,000	150,000	.....	500,000	.....	500,000
Centre,	1,498,250	.....	2,607,500	.....	.....	115,226
Clarion,	900,000	.....	150,000	50,000		
Clearfield,	2,000,000	.....	800,000			
Crawford,	200,000	.....	.....	.....	1,650,000	
Columbia,	480,000	.....	600,000			
Dauphin,	1,104,800	.....	100,000	23,000	.....	47,000
Elk,	634,000	.....	400,000			
Erie,	700,000	.....	400,000			
Forest,	300,000	.....	800,000	.....	.....	50,000
Indiana,	1,530,000	.....	95,000	1,000,000	.....	15,000
Lackawanna,	.....	.....	.....	1,100,000		
Luzerne,	200,000	.....	16,000			
Lycoming,	5,340,000	150,000	9,800,000	200,000	859,458	
Potter,	1,800,000	000,000				
Sullivan,	.....	100,000				
Tioga,	.....	200,000				
Warren,	10,314,000	6,970,000	1,150,000	103,000	3,711,794	
	33,459,300	8,670,000	20,304,920	2,998,000	6,446,252	944,486

LUMBER MANUFACTORIES—EMPLOYEES' WAGES.

BY WHOM OPERATED.	Foremen.		Head sawyers.		Sawyers.		Setters.		Edgers.		Filers.		Gummers.		Lath sawyers.		Lath bundlers.	
	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
Union Planing Mill, Sash, and Door Manufactory,	. . .	. . . .	. .	. . . .	1	$1 75												
Blake & Lacy,	2	$2 50	1	$1 25	10	1 25	1	$1 25	. . .	. . . .	1	$1 25	1	$1 25				
Stoner & McClure,	1	1 50	1	1 50	3	1 50	3	1 50										
Graham & Farmerie,	1	2 50	1	3 00	1	1 50	. . .	. . . .	. . .	. . . .	. . .	. . .	. . .	. . . .	1	$3 00		
S. P. & I. N. Large,	1	2 50	1	3 00	1	2 00	1	1 50	2	$1 50	. . .	. . . .	. .	. . . .	1	1 50		
Jacob Ritter & Co.,	. . .	. . . .	1	. . .	. . .	. . . .	1											
A. S. Mundorff,	2	3 75	. . .	. . . .	3	2 00												
Jeff. Hill & Co.,	1																	
P. C. Hetrick,	1	1 00	1	1 00														
Wilkins & Fullerton,	. . .	. . . .	1	2 00														
G. W. Wilkins,	1	3 75																
	1	2 50																
	2	2 00	2	1 25	2	1 25	2	1 25	6	1 25	. . .	. . . .	. . .	. . . .	4	1 25		
John F. Amment,	. . .	. . . .	1	1 35														
John B. Fluck,	1	1 00																
D. & C. Moore,	. . .	. . . .	. . .	. . . .	2	1 50												
A. A. Barker & Son,	. . .	. . . .	1	2 00	. . .	. . . .	2	1 25	1	1 25								
Michael Bracken,	. . .	. . . .	. . .	. . . .	1	1 50												
Black Lick Navigation and Improvement Company,	1	2 00	1	3 00	1	1 75	1	1 25										
Porter Kimports,	. .	. . . .	. . .	. . .	1	1 50	1	1 25										
Benjamin Benshoff,	1	2 00	1	2 00	. . .		1	1 00										
F. Vowinckel & Co.,	1	1 75	. . .	. . . .	1	2 00	1	1 60	1	1 25								
E. D. Sizer,	1	. . . .	1	1 50	1	1 50	1	1 00	1	1 00								
I. S. Wiley,	3	. . . .	1	. . . .	2	. . . .	2	. . .	1	. . . .	1							
Kaul, Walker & Co.,	1	2 25	1	2 25	. . .	. . . .	1	1 50	1	1 25	. . .	. . . .	. .	. . . .	1	1 00		
															2	1 25		
G. A. Barclay,	1	1 50	1	3 00	. . .	. . . .	1	1 50	1	1 50								
Albert Lewis & Co.,	1	2 25	1	1 75	4	1 50	4	1 25	2	1 25	1	1 25	. . .	. . . .	1	1 25	1	$1 25
John T. Fowler,	2	2 75	1	3 00	. . .	. . .	2	1 25	1	1 25	.	. .	. . .	. . .	4	1 00	1	1 00
Hoover, Harris & Co.,	2	*g*60 00	. . .	. . . .	4	3 00	2	1 50	4	1 15	2	2 00	1	1 75	2	1 80	2	1 15
	1	50 00																
	2	40 00																
Isett & Stoke,	1	2 50	1	2 50	1	. . . .	1	1 60	1	1 25	. . .	. . . .	. . .	. . . .	4	1 30		
									1	1 50								
Marvin, Rulofson & Co.,	1	4 00	1	1 85	1	1 35	. .	. . . .	2	1 35								
John Metzger & Co.,	. . .	. . . .	. . .	. . .	1	1 00	. . .	. .	. .	. . . .	. . .	. . . .	. . .	. . . .	1	*c*90		
Hahn, Wagner & Curlls,	. . .	. . . .	1	2 50	2	2 50	1	1 50	1	1 25	2	2 50	2	2 50	3	1 50	1	1 50
A. J. Landers,	1	2 00	1	3 00	. . .	. . . .	1	1 50	1	1 25								
D. K. Ramey & Co.,	. . .	. . . .	. . .	. . . .	1	3 00	1	1 50	1	1 50	. .	. .	. .	. . .	3	*c*		
Homewood Mill Company,	1	*b*800 00	3	1 35	2	1 10	2	1 10	1	1 25	2	2 25						

Lumber.—Employees' Wages—Continued.

BY WHOM OPERATED.	Foremen.		Head sawyers.		Sawyers.		Setters.		Edgers.		Filers.		Gummers.		Lath sawyers.		Lath bundlers.	
	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
Kreamer & Mann,	1	$2 50	1	$1 54	. . .	. . . .	. .	. . . .	2	$1 50	2	$1 62½						
B. M. Sherwood & Son,	1	2 00	1	2 00	. . .	. . . .	1	$1 50										
Charles & R. A. Stratton,	3	2 00	1	2 00	. . .	. . . .	2	1 25										
McQuiston & Co.,	. . .	. . . .	. . .	. . . .	1	$1 00	1											
A. D. & J. P. Williams & Co.,	. . .	. . . .	. . .	. . . .	1	*e*77												
E. W. Shippen,	1	. . .	1	1 00	1	1 00												
Octave Stave and Barrel Company,	. . .	. . . .	1	1 50	1	1 50												
Freas Brothers,	1	2 12½	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	1	1 00						
Weaver & Co.,	1	2 00	1	1 50	. . .	. . . .	1	1 00	. . .	. . . .	. . .	. . . .	. . .	. . . .	2	$1 50		
J. S. & W. H. Hyde,	3	1 25	3	1 25	3	1 25	3	1 25	3	1 25								
Oyster & Short,	1	. . . .	2	. . . .	. . .	. . . .	2	. . . .	2	. . . .	1							
Davis & Hammond,	1	. . .	1	. . . .	1	. . . .	1	. . . .	1	. . . .	1							
T. D. Collins,	1	2 25	2	2 00	. . .	. . . .	2	1 25	2	1 25	. . .	. . . .	. . .	. . . .	4	1 25		
Root & Watson,	1	2 00	. . .	. . . .	1	2 60	1	1 35										
Dickey, Darrah & Co.,	. . .	. . . .	1	3 00	. . .	. . . .	1	75	1	75								
Eugene Snyder,	1	2 00	1	2 00	. . .	. . . .	. . .	. . . .	. . .	. . .	. . .	. . . .	. . .	. . . .	1	1 50		
J. D. Kizer & Son,	. . .	. . . .	. . .	. . . .	1	1 00												
W. Dale & Son,	. . .	. . . .	. .	. . . .	1	1 87½	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	1	1 10		
Harvey Bros. & Co.,	1																	
Brown, Earley & Co.,	2	3 00	5	2 00	12	1 50	. . .	. . . .	2	1 75	2	3 25	. . .	. . . .	2	2 00	1	$1 50
McClary & Buck,	1	1 50	2	1 50	3	1 50	1	1 50	1	1 50	2	1 50	. . .	. . . .	4	1 50	1	1 50
Gilman & Co., (Empire Mills,)	2	2 25																
P. B. Merrill & Co.,	1	*b*1,000	3	1 40	4	1 12½	. . .	. . . .	1	1 60	3	2 50	. . .	. . . .	3	1 60	1	1 20
Payne & Co.,	2	3 00	6	1 75	6	1 60	. . .	. . . .	2	1 75	2	3 25	. . .	. . . .	2	1 75	1	1 50
Howard, Perley & Howard,	3	. . . .	4	. . . .	2	. . . .	. . .	. . . .	. . .	. . . .	2	. . . .	2	. . . .	. . .	. . . .	1	. . . .
Woolverton & Tinsman,	2	2 50	3	1 80	4	1 25	2	1 50	1	1 75	2	3 00	1	$3 00	4	1 80	2	1 25
Jacob Edler,	1	1 00	1	1 00	1	1 00	1	75										
Bodine, Warn & Co.,	1	2 50	1	1 75	. . .	. . . .	. . .	. . . .	2	1 15								
George Edkin,	. . .	. . . .	. . .	. . . .	1	*c*1 25	1	. . . .	1									
D. Clapp & Co.,	1	2 50	1	1 50	1	1 50	1	1 25	1	1 00	. . .	. . . .	. . .	. . . .	2	1 00	. . .	. . . .
Jacob D. Budman,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	1					
Robert M. Bigger,	. . .	. . . .	. . .	. . . .	1	*e*1 50	. . .	. . . .	2	*e*60	3	*e*60	. . .	. . . .	2	*e*60	1	*e*60
D. D. Gordnern,	. . .	. . . .	1	1 00														
Joseph O. Kreamer,	. . .	. . . .	1	2 00														
John Fry,	. . .	. . . .	1	1 50	. . .	. . . .	. . .	. . . .	1	1 50								
Ritter & Beck,	1	1 80																
Ira T. Clement,	4	1 25	. . .	. . .	3	1 25	3	1 25	2	1 25	1	1 25	. . .	. . . .	2	1 25	1	1 25
Cook & Pardee,	. . .	. . . .	. . .	2 50	. .	1 70	. . .	1 40	. . .	1 30	. . .	2 00						
J. A. Bogordes,	. . .	. . . .	. . .	. . . .	1	1 00												
Chapin & Ransom,	. . .	. . . .	1	1 00	1	80	. . .	. . . .	1	80								

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Lumber.—Employees' Wages—Continued.

BY WHOM OPERATED.	Lumber counters.		Shippers.		Laborers.		Engineers.		Firemen.		Teamsters.		Boys.		Other employees.	
	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
Union Planing Mill, Sash, and Door Manufactory,	...	.....	...	.....	5	.....	...	.....	...	.....	4	.....	4	.....	7	$1 87
															5	2 50
															8	*a*
Blake & Lacy,	2	$1 25	2	$1 25	40	$1 00	1	$1 25	1	$1 25	...	.....	11	$0 50	6	
Hope Planing Mill, D. O. Cunningham,	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	4	1 25	8	$1 25
Stoner & McClure,	...	.....	...	.....	...	.....	1	1 50	2	1 50	...	.....	...	.....	18	2 00
Graham & Farmerie,	...	.....	...	.....	5	1 50	1	2 50	...	.....	2	$1 66	1	1 50		
S. P. & I. N. Large,	...	.....	1	2 50	20	1 50 and 1 75	1	2 25	1	2 25	...	.....	...	.....	1	*b*900 00
Jacob Ritter & Co.,	...	.....	...	.....	1	75	1									
A. S. Mundorff,	1	2 00	1	2 50	...	.....	1	2 25	...	.....	3	1 33⅓	2	50	6	1 75
															2	1 87½
															4	1 50
Murphy, McCaln & Co.,	...	.....	...	.....	4	1 50	1	1 50	...	.....	1	1 50	2	*c*55	4	1 75
													2	1 00	1	1 25
															1	2 00
Jeff. Hill & Co.,	...	.....	...	.....	3	...	1	.....	...	.....	...	.....	...	.....	1	*d*2
J. S. Quigley & Son,	...	.....	...	.....	...	.....	1									
P. C. Hetrick,	...	.....	...	.....	1	1 00	1	1 00	1	1 00						
S. C. B. & J. G. Klimmel,	...	.....	...	.....	1	*e*75										
Wilkins & Fullerton,	...	.....	...	.....	...	.....	1	1 25	...	.....	...	.....	1	60		
G. W. Wilkins,	...	.....	...	.....	6	1 25	2	1 50	...	.....	1	1 25	5	60	4	1 25
															10	2 50
David Rearich,	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	1			
Lasher & Gahagen,	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	1	*b*200 00
D. & C. Moore,	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	8	1 00
A. A. Barker & Son,	...	.....	...	.....	3	1 25	...	.....	1	1 50	...	.....	...	.....		
Michael Braeken,	...	.....	...	.....	13	1 35	...	.....	1	1 35	...	.....	1	85		
Black Lick Navigation and Improvement Co.,	1	1 25	...	.....	20	1 00	1	1 25								
Porter Kimports,	...	.....	...	.....	...	.....	...	.....	...	.....	1	1 25	...	.....	1	1 25
Benjamin Benshoff,	1	1 00	...	.....	8	1 00	...	.....	1	1 00	...	.....	3	65	1	1 50
F. Vowinckel & Co.,	1	1 45	...	.....	24	1 25	...	.....	1	2 00						
E. D. Sizer,	...	.....	...	.....	7	1 00										
I. S. Wiley,	1	.....	1	.....	8											

Kaul, Walker & Co.,	1	1 50	1	2 00	15	1 25	1	1 75										
G. A. Barclay,					6	1 25	1	1 50										
Albert Lewis & Co.,	2	1 25	1	1 50	53	1 25									4	75		
John T. Fowler,	1	1 50	2	2 50	80	1 00	1	1 50		1 00					10	63	*h*2	
																	1	1 40
																	1	1 20
																	3	3 00
T. J. Dunkel,															2	50	8	1 25
Hoover, Harris & Co.,	4	1 40	6	1 15	60	1 15	1	1 75									25	1 50
							2	2 00										
Isett & Stoke,	1	1 35			3	1 25	1	2 25										
Marvin, Rulofson & Co.,					13	1 35	1	1 35	1	1 60								
John Metzger & Co.,					8	75												
Hahn, Wagner & Curlls,	2	1 50	2	1 50	23	1 15	2	1 25	1	1 25								
A. J. Landers,					3	1 25			1	1 50	2	1 37					1	1 40
D. K. Ramey & Co.,	2	1 50	2	1 50	35	1 25	2	1 75			5	1 50					2	
Homewood Mill Company,	1	2 00	1	*b*250 00	17	1 29	1	3 00							30	1 00	25	1 25
Kreamer & Mann,	1	2 00			13	1 12½	1	1 76	1	75							1	1 10
																	6	1 32
B. M. Sherwood & Son,	1	1 50	1	1 50	1	1 25	1	1 50	1	1 00							3	1 75
					4	1 00											2	2 00
																	9	2 25
Charles & R. A. Stratton,					7	1 00			1	1 25						62½		
McQuiston & Co.,					1				1									
A. D. & J. P. Williams & Co.,											3	*e*58						
A. Gilbert & Morgan,							1		1									
E. W. Shippen,					1	1 00	1	1 00									2	1 00
Octave Stave and Barrel Company,							1	1 50									9	1 50
Nash & Co.,															1	75	6	1 50
Freas Brothers,					17	1 00	2	1 00							3	35 to 50		
William Ziegler,															2	50	18	80
Weaver & Co.,	1	1 25			3	1 00	1	1 50									2	2 00
																	2	1 00
J. S. & W. H. Hyde,					20	1 25	2	1 25	2	1 25						75		
Oyster & Short,					60		1		1									
Davis & Hammond,															4		30	
T. D. Collins,			1	1 25	16	1 25			2	1 50								
Root & Watson,					3	1 30			1	1 35	3	1 25						
Dickey, Darrah & Co.,									1	1 00							8	
James R. Daugherty,																	8	
G. T. Jones,					2		1		1									
F. Lamorex,					2	90	1	90										
Eugene Snyder,					7	1 00												
J. D. Kizer & Son,					2	75												
W. Dale & Son,					8	1 20	1	2 00							3	50		
Harvey Brothers & Co.,							1	1 35			1	1 40	1	50			4	1 60
																	1	2 00
																	1	1 00
C. & S. V. Lee.,																	5	
Brown, Earley & Co.,	3	2 00	12	1 00	22	1 40	1	3 50							1	1 00		
															5	1 50		

Lumber.—Employees' Wages—Continued.

BY WHOM OPERATED.	Lumber counters.		Shippers.		Laborers.		Engineers.		Firemen.		Teamsters.		Boys.		Other employees.	
	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
McClay & Buck,	2	$1 50	3	$1 50	10	$1 50	1	$1 50	1	$1 50	...	.....	4	$1 00		
Empire Mills, Gilman & Co.,	...	.....	1	1 50	12	1 00	...	.....	...	.....	2	$1 25	9	50	19	$1 62½
													9	55		
P. B. Merrill & Co.,	1	1 50	3	2 00	29	1 18¾	1	1 75	...	.....	...	.....	2	1 00	1	1 75
							1	3 50					9	50		
													2	77		
H. M. & J. B. Otto,	...	.....	1	2 25	5	1 25	...	.....	...	.....	...	.....	...	.....	1	*i*
Payne & Co.,	2	2 25	...	.....	61	1 40	1	3 00	2	1 75						
Howard, Perley & Howard,	4	.....	...	.....	36	.....	2	...	1							
Woolverton & Tinsman,	4	1 50	8	1 00	25	1 50	1	2 50	1	1 50						
Jacob Edler,	...	.....	...	.....	...	.....	...	.....	1	1 00	2	1 50	1	75		
													1	50		
													2	20		
Bodine, Warn & Co.,	...	.....	1	.....	4	1 00	...	.....	1	1 00	1	1 00				
D. Clapp & Co.,	1	1 00	2	1 00	17	1 00	1	2 25	1	1 00	...	.....	...	.....	6	1 66⅔
	1	1 25				and 1 25										
Jacob D. Budman,	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	2	
Robert M. Bigger,	...	.....	2	1 00	...	.....	...	.....	1	*e*75	...	.....	4	40		
D. D. Gordnern,	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	1			
Joseph O. Kreamer,	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	1	1 00		
John Fry,	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	1	75		
													1	50		
Ritter & Beck,	...	.....	...	.....	1	1 00	1	1 60	...	.....	...	.....	...	.....	7	1 50
Ira T. Clement,	...	.....	3	1 25	30	1 25	3	1 25	...	.....	...	.....	8	65	25	1 25
Cook & Pardee,	...	.....	...	1 75	...	1 20	...	2 00	...	1 30						
J. A. Bogordes,	...	.....	...	.....	...	.....	...	.....	1	50	...	.....	...	.....	1	50
Chapin & Ransom,	...	.....	...	.....	2	80	1	1 00								
Farnham, Dodge & Dalrymple,	...	.....	...	.....	...	.....	...	.....	1	1 00						
L. W. Crawford,	...	.....	...	.....	1	1 00										
Hassinger, Walter & Co.,	1	1 00	2	1 25	...	.....	1	1 25	...	.....	...	.....	...	.....	2	*c*1 40
															2	*c*1 00
															4	95
G. W. & J. B. Brown,	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	1	
Walter Spencer,	...	.....	...	.....	4	1 00	...	.....	1	1 00	...	.....	...	0 75		
Martin & Reeser,	1	50	...	.....	3	50	1	1 00	1	50						
Jonathan Rogers,	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	4	*l* 18 00
Jacob Lorch & Co.,	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	16	
Lovel & Tanner,	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	5	

Stayman & Zimmerman,																	5	
																	1	1 50
Martin & Davis,																	4	
Grandin & Slater,							1		1								6	
Bucher, Maltby & Co.,					1	1 50			1	1 50								
John Slater,	1	*g* 18 00	1	*g* 18 00	1	*g* 18 00			1	*g* 22 00							4	*g* 18 00
Henry Baxter,					2	1 10			1	2 00							8	1 25
																	4	3 50
Rockwell & Co.,					7	1 25			1	1 25								
Lewis Bates,																	3	
I. S. & D. H. Donaldson,			1		2	1 25												
Hyde & Skiff,																	4	1 00
D. Henry,					2				1									
M. Bristol, junior,									1	1 50								
M. Venus,									1	1 25								
Morrison Brothers,	1	1 25			15	1 00	1	1 50	1	1 00								
L. B. Wood & Co.,			4	1 25	4	1 25			2	2 50							35	1 25
Imel & Gordon,									1	2 00							3	1 25
																	12	*k*
Peter Holt,					3		1	1 00										
George W. Quaints & Brothers,					1	75			1	2 00								
Gilbert Turner & Son,					2	1 00			1	1 00								
Thomas I. Baker,					2	1 20			1	1 20								
Goodwin Brothers,							1	50										
R. Stewart.					2	1 50			1	1 50			1	57				
Benjamin & Hills,							1	1 25			1	1 25	2	50				
E. W. Ross & Son,	1	3 00			5	1 25			1	1 50							20	
W. M. Hagerty,																	6	85
																		to 2 00
H. Hazeltine & Son,	1	1 00					1	75			1	75	2	50			2	75
Wesley Milspau,											1	1 00	1	50			3	1 00
Orris Hall,					4	1 40					3	4 00					3	1 50
John McNair & Co.,	1	1 00	2	1 00	12	1 00	1	1 25										
J. W. Agrelius & Co.,					1	1 00			1	1 30								
Brace & Bowman,									1	1 25	1	1 25	2	75				
Patch & Walters,					2	1 37½			1	1 37½	2						3	
Johnson & Eldred,					1	1 00											2	
E. E. James,					14	1 00							7	25	1	2 50		
C. Chase,									1	75			1	50	1	75		
Miekle & Phillis,			1	1 50	5	1 25			1	1 50							3	1 00
Star Mill, (F. B. Hayward,)																	3	*g* 11 50
C. A. Trisket,									1	*g* 11 50								

a Price paid per piece.
b Salary per annum.
c Price paid per thousand.
d Price paid per bushel, coal diggger.
e Price paid per day, and boarded.
f Employ help as needed, pay fifty cents, and board.
g Price paid per month.
h Help in boarding-house, $1 50 and $2 50 per week.
i Agent receives 5 per cent. of what he sells.
k Contract.
l Price per month, and boarded.

NOTE.—The following is a classification of occupations, with daily wages paid each, enumerated as "Other Employés," in foregoing table, in their respective counties:

ALLEGHENY.

Seven beach hands, $1 87; 5 machine hands, $2 50; 8 box makers, per piece. Six drawers and pilers, not given. Six carpenters, $1 75; 2 machine hands, $1 87½; 4 box makers, $1 50; 18 men not classified, average $2; 1 book-keeper, $900 per annum; 8 machine men.

ARMSTRONG.

Four carpenters, $1 75; 1 watchman, $1 25; 1 book-keeper, $2; 1 coal digger, 2 cents per bushel; 10 caulkers, $2 50; 1 watchman, $1 25; 2 raftmen, $1 25; 1 stock-keeper, $1 25; 1 blacksmith, $200 per annum.

CAMBRIA.

Eight men, not classified, $1; 1 off-bearer, $1 25; 1 blacksmith, $1 50.

CENTRE.

Two women, $1 50 and $2 50 each per week; 1 stableman, $1 20; 1 blacksmith, $1 40; 3 book-keepers, $3; 8 men, not classified, $1 25; 25 mechanics, different kinds, $1 50.

CLARION.

One blacksmith, $1 40.

CLINTON.

Twenty-five men, not classified, $1 25; 1 watchman, $1 10; 6 lumber pilers, $1 32.

CRAWFORD.

Two planing-mill hands, $2; 2 turners, $1; 3 sash and door, &c., hands. $1 75; 9 D. handle department, $2 25; 9 men, not classified, $1 50.

CUMBERLAND.

Eighteen men, not classified.

DAUPHIN.

Two shingle sawyers, $2; 2 shingle packers, $1.

LUZERNE.

One machine operator, $1 60; 1 watchman, $1; 1 book-keeper, $2; 3 carpenters, $1 60.

LYCOMING.

Nineteen machine men, $1 62½; 1 log sorter, $1 75; 6 log sawyers. $1 66⅔; agent, 5 per cent. of what he sells.

Northampton.

Seven carpenters, $1 50.

Potter.

One shingle packer, 50 cents.

Union.

One iron molder, $1 50; 5 men not classified.

Warren.

One slab cutter, ——; 1 off-bearer, $1 25; 4 men, not classfied, $18 per month; 7 stockers, $1 25; 4 teamsters, $3 50; 4 men not classified, $1; 35 wood choppers, &c., $1 25; 2 board pilers, $1 25; 1 log jacker, $1 25; 12 men on contract; 6 men, not classified, 85 cents to $2; 2 log cutters, 75 cents; 3 men, not classified, $1; 3 log cutters, $1 50; 3 log cutters, $——; 1 log cutter, $2 50; 1 man, not classified, 75 cents; 3 men, not classified, $1; 31 men, not classified, $——; 2 lumber pilers, $——; 1 log hauler, $——.

Recapitulation.

The following tables and recapitulation of the foregoing, show the classification of employés, and the average daily, yearly, and weekly wages.

COUNTIES.	Number of returns.	Weeks in operation.	Foremen.	Head sawyers.	Sawyers.	Setters.	Edgers.	Filers.	Gummers.	Lath sawyers.	Lath bundlers.	Lumber counters.	Shippers.	Laborers.	Engineers.	Firemen.	Teamsters.	Boys.	Other employees.
Allegheny,	9	33	7	5	19	6	2	1	1	2	. . .	3	4	71	6	4	9	2	65
Armstrong,	13	20	6	5	2	2	6	. . .	. . .	4	. . .	. . .	. . .	15	7	1	2	11	22
Bedford,	2	34	1	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	2					
Cambria,	9	41	3	3	6	6	2	. . .	. . .	. . .	. . .	3	. . .	68	1	4	1	4	10
Cameron,	4	43	6	4	3	5	4	1	. . .	3	. . .	2	2	36	2				
Carbon,	1	52	1	1	4	4	2	1	. . .	1	1	2	1	53	. . .	. . .	. . .	4	
Centre,	5	32	8	2	5	5	7	2	1	10	3	6	8	143	5	1	. . .	12	40
Clarion,	4	33	2	3	4	2	4	2	2	4	1	2	2	47	3	3	2	. . .	1
Clearfield,	1	50	. . .	. . .	1	1	1	. . .	. . .	3	. . .	2	2	35	2	. . .	5	. . .	2
Clinton,	2	31	2	5	2	2	3	4	. . .	. . .	. . .	2	1	30	2	1	. . .	30	32
Crawford,	8	35	5	4	4	4	. . .	. . .	. . .	. . .	. . .	1	1	14	4	4	3	1	31
Columbia,	1	52	1	. . .	. . .	. . .	. . .	1	. . .	. . .	. . .	. . .	. . .	17	2	. . .	. . .	3	
Cumberland,	1	20	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. .	. . .	. . .	2	18
Dauphin,	1	22	1	1	. . .	1	. . .	. . .	. . .	2	. . .	1	. . .	3	1	. . .	. . .	. . .	4
Elk,	2	30	4	5	3	5	5	1	. . .	. . .	. . .	. . .	. . .	80	1	1			
Erie,	1	. . .	1	1	1	1	1	1	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	4	30
Forest,	3	21	2	3	1	4	3	. . .	. . .	4	. . .	. . .	1	19	. . .	4	3	. . .	8
Indiana,	2	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	2	1	1	. . .	. . .	8
Lackawanna,	4	38	1	1	2	. . .	. . .	. . .	. . .	2	. . .	. . .	. . .	19	2	. . .	. . .	3	
Luzerne,	2	. . .	1	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	1	. . .	1	1	11
Lycoming,	17	24	16	29	35	6	14	16	4	19	8	18	33	221	9	9	5	53	29
Northampton,	1	45	1	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	1	1	. . .	. . .	. . .	7
Northumberland,	2	42	4	. . .	3	3	2	1	. . .	2	1	. . .	3	30	3	1	. . .	8	25
Potter,	4	35	. . .	2	4	1	1	. . .	. . .	. . .	. . .	. . .	. . .	3	1	2			
Snyder,	1	45	1	1	. . .	1	1	. . .	. . .	. . .	. . .	1	2	. . .	1	. .	. . .	. . .	8
Sullivan,	5	10	1	3	1	. . .	2	. . .	. . .	. . .	. . .	1	. . .	7	. . .	2	. . .	. . .	20
Tioga,	1	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	5
Union,	1	. . .	2	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	6
Warren,	39	27	10	21	18	22	23	2	2	10	4	5	9	88	7	23	9	16	134
	146	*34.6	87	99	118	81	83	33	10	66	18	49	69	1,004	62	61	40	154	516

General average.

Recapitulation.

COUNTIES.	AVERAGE DAILY WAGES.							Average days employed.	AVERAGE EARNINGS.						
									YEARLY.						
	Foremen.	Sawyers.	Setters, edgers, &c.	Engineers and firemen.	Bundlers, teamsters, &c.	Boys.	Counters, shippers, and other employees.		Foremen.	Sawyers.	Setters, edgers, &c.	Engineers and firemen.	Bundlers, teamsters, &c.	Boys.	Counters, shippers, and other employees.
Allegheny,	$2 71	$1 66	$1 42	$1 81	$1 57	$0 72	$1 85	228	$6 7 88	$378 48	$323 76	$412 68	$357 96	$164 16	$421 80
Armstrong,	2 25	1 30	1 25	1 29	1 32	70	1 94	120	270 00	156 00	150 00	154 80	158 40	84 00	232 80
Bedford,	1 60	. . .	. . .	. . .	. . .	. . .	. . .	204	204 00	. . .	. . . .	. .	. . . .	. . . .	. . . .
Cambria,	1 92	1 86	1 32	1 42	1 15	70	1 11	246	472 32	457 56	324 72	349 32	282 90	172 20	273 06
Cameron,	1 88	1 68	1 30	1 62	1 19	. . .	1 75	258	485 04	433 44	335 40	417 96	3 7 02	. . .	451 50
Carbon,	2 25	1 50	1 25	. . .	1 25	75	1 33	312	702 00	468 00	390 00	. . .	390 00	234 00	414 96
Centre,	1 66⅔	1 89	1 43	1 75	1 06	61	1 47	192	319 00	362 88	274 56	336 00	203 52	117 12	282 24
Clarion,	3 00	1 24	1 82	1 37	1 10	. . .	1 48	193	581 00	245 52	360 36	271 26	217 80	. . . .	293 04
Clearfield,	. .	3 00	1 50	1 75	1 28	. .	1 50	300	. . . .	900 00	450 00	525 00	384 00	. . . .	450 90
Clinton,	2 53	1 33	1 58	1 84	1 22	1 00	1 29	186	470 58	247 38	293 88	342 24	226 92	186 00	239 94
Crawford,	2 00	1 43	1 33	1 25	1 02	75	1 73	210	420 00	300 30	279 30	262 50	214 20	157 50	363 30
Columbia,	2 12½	. . .	1 00	1 00	1 00	42	. . .	312	663 00	. . . .	312 00	312 00	312 00	131 04	. . . .
Cumberland,	. . .	. . .	. .	. .	. .	50	80	120	. .	. . . .	. . . .	. .	. . .	60 00	96 00
Dauphin,	2 00	1 50	1 00	1 50	1 00	. . .	1 45	132	264 00	198 00	132 00	198 00	132 00	. . . .	191 40
Elk,	1 25	1 25	1 25	1 25	1 25	75	. . .	180	225 00	225 00	225 00	225 00	225 00	135 00	. . .
Forest,	2 12½	1 82	1 12	1 34	1 26	. . .	1 25	126	247 75	229 32	141 12	168 81	158 76	. . . .	157 50
Lackawanna,	2 00	1 49	. . .	1 45	1 05	50	. .	228	456 00	339 72	. . . .	330 60	239 40	114 00	. . . .
Luzerne,		. .	. . .	1 35	1 40	50	1 57								
Lycoming,	2 48	1 52	1 78	1 88	1 32	68	1 45	144	357 12	218 88	256 32	270 72	190 08	97 92	207 70
Northampton,	1 80	. . .	. . .	1 60	1 00	. . .	1 50	270	486 00	. . . .	. . .	432 00	270 00	. . .	405 00
Northumberland,	1 25	1 25	1 25	1 25	1 25	65	1 25	252	315 00	315 00	315 00	315 00	315 00	81 25	315 00
Potter,	. . .	1 09	90	83	87	. . .	50	210	. . . .	228 90	189 00	174 30	137 20	. . . .	105 00
Snyder,	1 50	2 00	88	1 25	. . .	. . .	1 10	270	405 00	540 00	237 60	337 50	. . .	. . . .	297 00
Sullivan,	1 60	1 31	75	83	79	. . .	65	60	96 00	78 60	45 00	49 80	47 40	. . . .	39 00
Union,	2 00	. . .	. . .	. . .	. . .	. . .	1 50								
Warren,	1 84	1 70	1 30	1 35	1 21	43	1 26	162	298 08	275 40	110 60	218 70	163 35	69 66	220 32

	WEEKLY, (52 WEEKS.)						
	Foremen.	Sawyers.	Setters, edgers, &c.	Engineers and firemen.	Bundlers, teamsters, &c.	Boys.	Counters, shippers, and other employees.
Allegheny,	$11 88	$7 28	$2 23	$7 94	$6 88	$3 16	$8 11
Armstrong,	5 19	3 00	2 88	2 98	3 05	1 62	4 48
Bedford,	3 92						
Cambria,	9 08	8 80	6 24	6 71	5 44	3 31	5 25
Cameron,	9 33	8 34	6 45	8 04	5 90	. . .	8 68
Carbon,	13 50	9 00	7 50	. . .	7 50	4 50	7 98
Centre,	6 16	6 98	5 28	6 46	3 91	2 25	5 43
Clarion,	11 23	4 72	6 93	5 22	4 19	. . .	5 64
Clearfield,	. . . .	17 30	8 65	10 09	7 38	. .	8 65
Clinton,	9 05	4 75	5 65	6 53	4 35	3 58	4 61
Crawford,	8 08	5 77	5 37	5 05	4 10	3 03	6 99
Columbia,	12 75	. . .	6 00	6 00	6 00	2 52	
Cumberland,	. .	. . .	. .	. .	. .	1 15	1 85
Dauphin,	5 08	3 81	2 54	3 81	2 51	. . .	3 68
Elk,	4 33	4 33	4 33	4 33	4 33	2 60	
Forest,	4 76	4 41	2 71	3 25	3 05	. . .	3 03
Lackawanna,	8 77	6 53	. . .	6 35	4 60	2 19	
Luzerne,							
Lycoming,	6 87	4 21	4 93	5 21	3 65	1 88	3 99
Northampton,	9 31	. . .	. .	8 31	5 02	. .	7 79
Northumberland,	6 06	6 06	6 06	6 06	6 06	1 56	6 06
Potter,	. . . .	4 40	3 63	3 35	3 51	. . .	2 02
Snyder,	7 79	10 38	4 57	6 49	. . .	. . .	5 71
Sullivan,	1 85	1 51	86	95	91	. . .	75
Union,							
Warren,	5 73	5 39	2 13	2 20	3 14	1 34	4 23

TANNERIES IN PENNSYLVANIA.

NAME OF OPERATORS.	LOCATION.		Whole number of persons employed.	Amount paid for material used in business.	Amount paid annually for wages of employees.	Value of annual product.	Kind of leather manufactured.
	Town or City.	County.					
Miller's Tannery,	Granite Hill,	Adams,	....	$768 50	.....	$1,160 00	Harness, upper, and calf-skins.
Edmund Crouse,	Littletown,	do.	3	..	.....	.....	Rough leather and calf-skins.
John Gilbert,	Gettysburg,	do.	3	4,250 00	$562 00	.....	Rough and upper leather and calf-skins.
Kiefer, Stifel & Co.,	Allegheny City,	Allegheny,	42	125,000 00	20,000 00	160,000 00	Harness leather.
A. & J. Grœlzinger,	do. do.	do.	45	225,000 00	20,000 00	270,000 00	Sole and belting leather.
John McHone,	do. do.	do.	3	.....	1,000 00	....	Sheep-skins.
J. F. Whitlinger,	Apollo,	Armstrong,	1	....	500 00	....	Harness and upper leather.
James Darragh,	West Bridgewater,	Beaver,	3	2,500 00	416 00	4,000 00	Harness, upper, and calf-skins.
James N. Moorehead,	do. do.	do.	4	7,000 00	1,000 00	9,000 00	Harness and skirting.
J. B. Hoyt & Co.,	Everett,	Bedford,	75	300,000 00	25,000 00	.....	Oak, belting, and sole leather.
J. B. Hoyt & Co.,	Rays Hill,	do.	14	....	4,000 00	.....	Belting.
W. A. B. Clark,	Schellsburg,	do.	4	7,000 00	900 00	.....	Rough.
A. L. Hench,	Alum Bank,	do.	10	38,500 00	3,600 00	65,000 00	Oak, slaughter, sole.
Jonathan Mathias,	Colebrookdale,	Berks,	2	2,486 00	475 00	3,741 00	Harness upper, and calf skins.
Lewis Plack,	Altoona,	Blair,	4	15,000 00 to20,000 00	2,500 00	.....	Rough leather.
Adam Innes,	Granville Centre,	Bradford,	25	91,000 00	9,500 00	145,000 00	Union crop.
Adam Innes,	do. do.	do.	22	78,000 00	9,000 00	121,000 00	Union crop.
Samuel K. Carl,	Steinsburg,	Bucks,	2	3,500 00	450 00	5,000 00	Calf and over leather.
Noah Wambold,	Sellersville,	do.	3	2,500 00	600 00	4,000 00	Harness, upper, kip, and calf-skins.
John E. Hare,	Summerhill,	Cambria,	....	150 00	....	250 00	Unfinished leather.
B. F. Sherwood,	Sterling Run,	Cameron,	50 to 75	160,000 00	15,000 00	312,000 00	Sole leather, exclusively.
Hamilton, Martin & Co.,	Emporium,	do.	35 to 40	110,000 00	15,000 00	170,000 00	Sole leather.
Haller & Bro.,	Lehigh Gap,	Carbon,	3	2,500 00	....	3,000 00	Harness, upper leather, and calf-skins.
Kurtz & Stone,	Aaronsburg,	Centre,	2	1,000 00	....	1,800 00	Harness leather, upper, and calf-skins.
J. B. Hoyt & Co.,	Phillipsburg,	do.	45	286,000 00	23,850 00	350,000 00	Union crop.
J. F. Montgomery,	Howard,	do.	....	810 56	....	1,246 95	Slaughter, rough, upper, harness, kip,
John B. Alley & Co.,	Curwensville,	Clearfield,	35	240,000 00	15,000 00	250,000 00	Union crop. [and calf-skins.
James Millikeu & Son,	Clinton Dale,	Clinton,	3	.	550 00	....	Harness and shoe leather.
Edward B. Richie,	Serene,	Columbia,	6	18,000 00	1,800 00	24,000 00	Fire-hose and belting leather.
Jacob F. Rink,	Centre township,	do.	4 to 5	5,000 00	1,200 00	10,000 00	Harness, upper, kip, and calf-skins.
John Kirschner,	Ebensburg,	Cambria,	4	9,400 00	1,530 00	12,000 00	Rough, harness, upper, and calf-skins.

E. W. McCallum,	Jerseytown,	Columbia,	6		2,00 0		Harness, upper, kip, and calf-skins.
G. A. Herring,	Bloomsburg,	do.	4	15.000 00	1,000 00	25.000 00	Harness, kip, upper, and calf-skins.
Jacob Boland,	Conneautville,	Crawford,	9	32.000 00	3.800 00	40,000 00	Rough leather and calf-skins.
F. Schanweker,	Meadville,	do.	6	25,000 00	2,800 00 to3,000 00	33,0.0 00	Belting, harness, skirting, and rough leather.
Henry C. Babble,	Hogestown,	Cumberland,	2	5,707 89	150 75	7,748 79	Sheep-skins, rough leather.
Samuel Sample,	Carlisle Springs,	do.	2	3,897 00	300 00	4,188 32	
J. S. Melly & Bro.,	Mechanicsburg,	do.	2				
Joseph Wilhelm,	St. Mary's,	Elk,	60 to 75		30,000 00		Upper and rough.
W. H. Osterhout,	Ridgeway,	do.	80 to 100	400,000 00	35,000 00	650,000 00	Sole hemlock.
C. Miller,	Kersey's,	do.	3	2,000 00		4,100 00	Harness, wax, upper, kip, & calf-skins.
Wilcox Tanning Company,	Wilcox,	do.	410		75,000 00		Sole leather.
Wells & Son,	Lundy's Lane,	Erie,	6	4,000 00	1,900 00	30,000 00	Rough hemlock.
S. Y. Rossiter,	Girard,	do.	4	22,000 00			Rough slaughter leather.
C. E. Gunnison & Co.,	Erie,	do.	15	27,000 00	6,000 00	37,380 00	Sole, upper, harness, kip, and calf-skins and rough.
Archibold Chisholn,	Sterrettania,	do.	4	1,300 00	275 00	2,100 00	Rough.
Fayette Tannery,	Fails City,	Fayette,	12	66,000 00	4,000 00	78,000 00	Sole and belting leather.
G. Brooks & Co.,	Brookston,	Forest,	100to200	250,000 00	35.000 00	350,000 00	Hemlock sole leather.
M. D. Miller,	Upper Strasburg,	Franklin,	7	3,500 00	1,500 00	6,000 00	Sole leather.
W. J. Harris,	Concord,	do.	2		300 00		Sole, upper, and harness leather.
A. J. North	Mercersburg,	do.	7	30,000 00	1,800 00	40,000 00	Belting and sole leather.
M. M. Harrington,	Whitely,	Greene,	2	600 00	300 00	1,300 00	Harness, skirting, and upper leather.
A. D. Faust & Son,	Mount Union,	Huntingdon,	24 to 30	137,.00 00	12,000 00	195.0 0 00	Heavy oak, rough and sole leather.
Leas, McVitty & Sons,	Saltillo,	do.	13	65,852 00	4,825 00	99,765 00	Oak sole leather.
Charles Kerler,	Blairsville,	Indiana,		9,000 00	1,500 00	15,0.0 00	Harness, rough, and sole leather.
M. L. Stewart,	Brush Valley,	do.	2				Harness, kip, and calf-skins.
B. F. Pitts,	Grant,	do.	3	1,500 00	1,200 00	3,500 00	Harness, upper, calf-skins.
J. N. & W. H. Moore,	Van Wert,	Juniata,	2	4,000 00	436 00	5,000 00	Slaughter, rough, finished, and calf-skins.
William Kidd,	McCoysville,	do.	2	600 00	130 00		Rough leather, wax, upper, kip, and calf-skins.
G. L. Morss,	Carbondale,	Lackawanna,	20				Hemlock sole.
A. B. McKinstry,	Schultzville,	do.	50	125,000 00	18,000 00	175,000 00	Union crop sole leather.
Hoyt Brothers,	Gouldsboro',	do.	75	230,000 00		300,000 00	Hemlock sole leather.
F. G. Shirk,	Bird-in-Hand,	Lancaster,	5	15,000 00	21,000 00		Harness and shoe.
Abraham Suavely,	Lancaster,	do.	7	17,000 00	2,350 00	25,000 00	Harness leather.
D. S. Sichty,	Beartown,	do.	2	2,500 00	670 00	4,5 0 00	Harness, upper, and calf-skins.
A. Koulgmacher & Son,	Ephrata,	do.	2	1,600 00	400 00	2,500 00	Harness, bridle, upper, kip, and calf-skins.
J. & H. Loose,	Myerstown,	Lebanon,	5	8,611 36	1,433 37	12,430 38	Rough and calf-skins.
James Singmaster,	Macungie,	Lehigh,		8,000 00		13,000 00	Calf-skins, kip, and slaughter.
George M. Schellhamer,	Lynnville,	do.	2	2,000 00		3,000 00	Harness upper, and calf-skins.
Henry Gangware,	Schnecksville,	do.	1	759 00		1,500 00	Calf, kip, over, and harness.
A. A. Eaton,	Moosic,	Luzerne,	18	47,000 00	6,500 00	67,500 00	Union crop sole leather.
Nathan Radler,	Conyngham,	do.	2	1,800 00	720 00		Slaughter and calf-skins.
Davis & Tompkins,	Pittston,	do.	3	26,0 0 00	600 00	3,800 00	Sole, upper, and calf-skins.
I. A. Webb,	Muncy,	Lycoming,	2	1,075 00	450 00		Harness, upper leather, and calf-skins.
G. W. Hardenburg,	English Centre,	do.	55	20,000 00	18,000 00	275,000 00	Sole leather.
W. Hess & Co.,	Elimsport,	do.	3	700 00	60 00	1,500 00	Sole, harness, upper, and calf-skins.
E. M. Lundy,	Warrensville,	do.	2	1.500 00	300 00	2,800 00	Harness and shoe leather.
E. R. Wilkison,	Newberry,	do.	1	1,100 00	50 00	2,600 00	Rough leather.
John Ford,	Port Allegheny,	McKean,	2	5,000 00	450 00	8,000 00	Rough leather.

Tanneries in Pennsylvania—Continued.

NAME OF OPERATORS.	LOCATION.		Whole number of persons employed.	Amount paid for material used in business.	Amount paid annually for wages of employees.	Value of annual product.	Kind of leather manufactured.
	Town or City.	County.					
Spanogle & Pannebaker,	Lewistown,	Mifflin,	16	$70,000 00	$6,000 00	$85,000 00	Sole leather.
George Weller,	Menno,	do.	. . . .	600 00	. . . . .	1,100 00	All kinds.
Stephen Kistler,	Tannersville,	Monroe,	22	. . . . .	. . . . .	. . . . .	Union crop.
Stephen Kistler,	E. Stroudsburg,	do.	75 to 80	300,000 00	24,000 00	350,000 00	Sole leather and Union crop.
Day, Wilcox & Co.,	Mountain Home,	do.	45	134,000 00	1,300 00	200,000 00	Union crop, sole.
W. R. Bennett & Co.,	Stroudsburg,	do.	30	100,000 00	10,000 00	. . . .	Pebble, goat, buff, and splits, &c.
C. E. Kistler,	Sciota,	do.	20	105,936 64	6,785 53	120,580 94	Union sole leather.
John C. Morgan,	Fair View,	Montgomery,	3	6,500 00	700 00	8,000 00	Harness leather, calf-skins. and rough slaughter.
M. B. Casselberry,	Pottstown,	do.	3	5,000 00	1,200 00	7,000 00	Rough slaughter leather.
Addison & Miller,	Limerick,	do.	2	2,800 00	800 00	4,800 00	Rough slaughter, wax, upper, and calf-skins.
D. M. Casselberry,	Lower Providenee,	do.	. . . .	1,500 00	1,000 00	11,000 00	Calf, rough and finished upper and harness.
Benjamin F. Hess,	Montgomery Station,	do.	4	5,000 00	1,625 50	. . . . .	Harness and sole.
W. D. Weidemhaner,	Limestoneville,	Montour,	3	2,500 00	400 00	4,000 00	Sole, harness, upper, calf, and sheep-skins.
George Fulmer,	Portland,	Northampton,	29	105,000 00	10,000 00	120,000 00	Union backs.
Ephraham Loux,	Nazareth,	do.	2	1,068 00	275 00	1,728 99	Harness, upper, kip, and calf-skins.
J. M. Woolverton,	Snydertown,	Northumberland,	2	3,106 00	276 00	5,900 00	Slaughter, upper, kip, calf, harness, and sheep.
Joseph Howell & Co.,	Millerstown,	Perry,	16	80,000 00	6,500 00	100,000 00	Heavy slaughter, and rough leather.
John A. Bechtel,	Newport,	do.	17	91,000 00	6,000 00	140,000 00	Oak leather.
Keen & Coates,	943 N. Front st., Philadelphia,	Philadelphia,	24	87,849 00	11,800 00	130,000 00	Sole leather.
P. H. Costello,	Osway,	Potter,	40	. . . .	14,000 00	. . . . .	Sole leather.
Shear & Jones,	Coudersport,	do.	4	6,000 00	1,200 00	10,000 00	Rough leather.
D. Gememee & Co.,	Pine Grove,	Schuylkill,	8	3,500 00	3,450 00	40,000 00	Slaughter and sole leather.
Himan, Kimmel & Son,	Sacramento,	do.	2	2,500 00	190 00	. . . . .	Kips, upper, slaughter, and calf-skins.
Alfred Fridirlei,	North Penn,	do.	2	5,000 00	300 00	6,200 00	Slaughter, kip, calf, and sheep-skins.
H. L. Dean & Bro.,	Addison,	Somerset,	2	800 00	. . . . .	. . . . .	Sole, upper, kip, and calf-leather.
Jeremiah Wingert,	Wellersburg,	do.	4	5,000 00	500 00	7,000 00	Rough, skirting, upper, harness, calf-skins.
J. Cunningham,	Somerset,	do.	2	2,500 50	. . . . .	3,500 00	Sole, harness, upper, skirting, and calf-skins.

D. D. Stevins & Son,	Muney Valley,	Sullivan,	100	.....	....	.....	Hemlock sole.
W.H. Osterhout,	Greenwood,	Susquehanna,	30	18,000 00 to20,000 00	11,000 00	Tan on eommls'n	Hemlock sole leather.
J. H. & E. P. Munger,	Montrose,	do.	25	100,000 00	6,000 00	150,000 00	Hemlock sole leather.
A. Corbin & Co,,	New Milford,	do.	16	67,500 00	5,000 00	100,000 00	Hemlock sole, non-aeid.
A. G. Wier,	Thompson,	do,	2	3,750 00	700 00	.....	Harness, calf, kip leather.
Hoyt Brothers,	Blossburg,	Tioga,	50	275,000 00	24,000 00	35,000 00	Hemlock sole.
O. B. Lowell & Co.,	Niles Valley,	do.	36	36,062 01	13,481 90	62,113 94	Hemlock sole.
Lowell & Co.,	Tioga,	do.	39	147,379 05	12,897 70	185,644 39	Sole leather.
F. Eberle & Bro.,	Westfield,	do.	3	12,000 00	1,000 00	18,000 00	Upper leather.
R. Hammond,	Oseeola,	do.	20 to 34	30,000 00	9,600 00	200,000 00	Sole leather.
H. H. Crary & Co.,	Westfield,	do.	45	200,000 00	18,000 00	275,000 00	Sole leather.
Abraham Shoch,	New Berlin,	Union,	2	1,200 00	400 00 to 500 00	2,000 00	Harness, sole, upper, and calf-sklus.
Horton, Cray & Co.,	Sheffield,	Warren,	90	.....	.....	.....	Hemloek sole leather.
White & Co.,	Stoneham,	do.	75	200,000 00	35,000 00	400,000 00	Sole leather.
T. H. Norris,	Clarendon,	do.	100 to 200	160,000 00	26,000 00	225,000 00	Hemlock sole.
McConnell & Harmans,	West Spring Creek,	do.	20	.....	7,500 00	200,000 00	Rough leather.
S. Smith,	Canonsburg,	Washington,	14	2,000 00	.....	4,000 00	Harness, bridle, upper, kip, and calf-skins.
Wefferling Bruuing,	Honesdale,	Wayne,	10 to 12	7,000 00	4,000 00	....	Sole leather.
Ira Nichols,	Pleasant Mount,	do.	20	75,000 00	6,000 00	100,000 00	Hemlock sole leather.
William Cromwell,	Hawley,	do.	24	120,000 00	7,500 00	180,000 00	Union crop, sole leather.
W. L. Chambers,	Pleasant Unity,	Westmoreland,	2	12,000 00	400 00	23,000 00	Rough leather, finished harness, and calf-skins.
Jaeob Lobengier,	Laurelville,	do.	2	850 00	.....	1,700 00	Rough skirting, upper, kip, and calf-skins.
B. E. Hebrank,	Adamsburg,	do.	1	1,800 00	350 00	3,000 00	Harness, upper, and calf-skins.
G. W. Childs,	Jenningsville,	Wyoming,	30	117,000 00	10,000 00	.....	Union Crop.
Smith Brothers,	Factoryville,	do.	6	16,360 00	1,500 00	24,000 00	Rough, upper, and russet sheep leather.
John M. Habliston,	Shrewsbury,	York,	7	22,486 00	2,600 00	.....	Sole leather.
Jacob G. Bortner,	Glen Rock,	do.	11	6,455 00	2,442 00	15,000 00	Sole, upper, skirting, and calf-skins.
Deardorff & Co.,	Dillsburg,	do.	4	4,000 00	900 00	6,000 00	Hemp, upper, and sklu.
H. Winebrenner & Son,	Hanover,	do.	2	8,000 00	650 00	12,000 00	Sole leather.

TANNERIES.—

NAME OF OPERATORS.	Hours worked per day.	Weeks in operation during the year.	Tanners.		Beam hands.		Yard.		Rollers and spongers.	
			Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
Klefer, Stifel & Co.,	10	....	..	$1 83	..	$1 83	..	$1 50	..	....
A. & J. Groetzinger,	10	....	.	....	..	1 67 and 1 83	..	1 50	..	$1 75
John McHone,	...	30	..	....	..	....	..	....	..	....
James Darragh,	....	....	..	1 32	.	....	..	....	..	....
James N. Moorhead,	...	50	..	1 50	..	1 00				
J. B. Hoyt & Co.,	....	....	..	1 50 to 2 00	..	1 50	..	1 30	..	....
J. B. Hoyt & Co.,	..	....	..	2 00	..	1 40	..	....	..	....
W. A. B. Clark,	8½	....	..	75	..	....	..	....	..	....
A. L. Hench,	11	52	..	....	..	1 21	..	1 16	..	1 20
Jonathan Mathias,	10	52	..	1 12	..	....	..	..	..	....
Louis Plack,	10	50	.	*65 00	..	1 50	..	1 25	..	....
Adam Innes,	...	....	1	3 00	5	1 38	8	1 10	3	1 20
Adam Innes,	10	51	1	3 00	4	1 37	7	1 10	3	1 20
Noah Wambold,	10	52	..	....	..	....	..	....	..	....
B. F. Sherwood,	..	....	..	1 25	..	1 35	..	1 15	..	1 00 to 1 23
Hamilton, Martin & Co.,	...	52	..	*60 00	..	† 4½	..	1 30	..	1 30
J. B. Hoyt & Co.,	...	....	..	....	..	1 40 to 1 50	..	1 50	..	....
John B. Alley & Co.,	.	48	8	1 33	15	1 33	2	....	4	....
James Millikin & Son,	10	50	1	1 00	..	....	..	....	..	....
Edward B. Richie,	..	....	..	1 00	..	1 35	..	1 00	..	....
Jacob F. Rink,	10	....	1	75	..	....	..	....	..	....
John Kerschner,	10	51	.	2 00	..	....	..	....	..	....
E. W. McCallum,	...	....	2	....	..	....	..	....	..	....
G. A. Herring,	...	48	1	2 00	1	1 66	1	1 00	..	....
Jacob Boland,	10	51	..	1 50	..	....	..	....	..	....
F. Schanweker,	..	52	..	....	..	1 16	..	....	..	....
Samuel Sample,	12	33	..	75	..	....	..	....	..	....
Joseph Wilhelm,	11	51	..	....	..	....	..	..	..	....
W. H. Osterhout,	11	51	..	1 00	..	† 4	..	1 30	..	1 00 to 1 25
C. Miller,	10	50	..	1 25	..	....	..	....	..	....
Wilcox Tanning Company,	..	50	..	..	..	1 25	..	1 25	..	1 25
Wells & Son,	10	50	..	1 50	..	1 25	..	1 00	..	....
S. Y. Rossiter,	....	....	..	*15 00	..	1 50	..	*15 00		
C. E. Gunnison,	10	50	..	..	.	1 25	.	1 25	..	1 40
Archibold Chisholm,	12	50	.	1 50	2	..	1	..	..	....
Fayette Tannery,	10	51	1	....	..	1 71	.	1 00 to 1 25	..	....
G. Brookston,	...	51	..	2 00	.	† 4¾	.	1 25	..	1 25
M. D. Miller,	10	52	..	..	2	1 10	2	75	..	...
A. J. North,	10	50	..	1 05	2	1 00	2	1 00	1	1 00
M. M. Harrington,	..	52	..	1 00						
A. D. Faust & Son,	10	51	..	....	..	1 80	..	1 30	..	+5c. to 6
Leas, McVitty & Sons,	10	51	..	..	..	1 25	..	1 03	..	† 3
Charles Kerler,	10	50	..	2 00	..	1 00	..	1 00		
B. F. Pitts,	10	....	..	..	..	....	..	1 00	..	....
J. N. & W. H. Moore,	10	52	1	1 00	..	50				
G. L. Morss,	10	..	..	..	..	† 4	..	..	..	† 6
A. B. McKinstry,	10	50	..	4 00	..	1 00 to 1 15	..	1 00	..	65 to 1 15
Hoyt Brothers,	10	50	..	3 00	..	† 5	..	1 25	..	1 37

EMPLOYEES' WAGES.

Bark grinders		Common laborers.		Engineers.		Curriers		Splitters		Shavers.		Table hands, scourers.		Blackers		Finishers.		Other employees	
Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
..	....	..	....	.	...	..	...	.	....	..	$3 00	..	$1 66	..	....	..	$1 66		
..	$1 10	..	$1 00	..	...	..	...	..	....	..	1 66	..	....	..	....	..	....	..	$1 00
..	....	..	....	..	...	..	....	..	....	..	...	..	....	..	....	..	....	3	
..	...	..	...	.	...	..	$1 33												
..	1 25	..	1 00																
..	1 25	..	1 00																
..	....	..	....	..	...	..	...	..	..	..	...	..	....	..	....	..	....	1	40
..	1 16	..	1 00																
..	75																		
..	1 00	..	1 00																
2	1 10	..	...	1	$1 25	..	...	..	...	..	...	..	....	..	....	..	....	4	1 10 to 1 75
2	1 10	3	1 10	1	1 25	..	...	..	...	..	...	..	....	..	....	..	....	1	1 75
..	25	..	1 50		...	..	...	.	...	..	...	..	....	..	....	..	....	..	21
..	1 00	..	1 00	..	..	..	...	..	...	..	...	..	....	..	....	..	....	..	60 to 93
..	1 20	..	1 20	..	...	..	...	..	...	..	...	..	....	..	....	..	....	..	50 to 80
.	1 50	..	1 00 to 1 25																
6	...	6	...	1															
..	..	..	..	..	...	..	1 00	.	...	..	...	1	1 00						
..	1 00	..	75																
..	...	..	...		...	1	1 25	..	...	..	...	..	....	..	....	..	....	2	50 to 75
..	...	..	1 00	..	...	.	...	..	...	..	...	..	....	..	....	..	....	1	75
..	...	..	...	..	...	1	...	..	...	..	...	1	....	..	...	1			
..	...	..	...	..	...	1	2 00	..	...	..	...								
..	...	..	...	..	...	..	1 25	..	$1 50	..	..	..	1 25	..	$1 25	..	1 50		
..	...	..	...	..	...	..	1 66												
..	...	..	...	..	...	..	...	..	...	..	...	..	....	..	....	..	....	1	50
..	.	..	...	..	...	4	...	..	1 50										
..	1 00	..	1 00																
..	1 00	..	...	..	...	..	1 50												
..	1 00	..	1 00																
..	90	..	90																
..	...	..	1 00	..	1 40	..	1 50	..	2 00										
1																			
..	1 25	..	1 00																
..	1 10	..	1 10	..	...	..	...	..	...	..	...	..	....	..	....	..	....	..	1 25
1	75	1	75	1	90														
1	75	1	75																
..	1 30	..	1 30	..	1 50	..	...	..	...	..	...	..	....	..	....	..	....	..	2 50
..	1 03	..	94	..	1 25	..	...	..	...	..	...	..	..	..	....	..	....	1	
..	...	..	...	..	...	..	...	..	...	..	...	..	....	..	....	..	....	..	*10 00
..	...	..	...	..	...	..	...	..	...	..	...	..	....	..	....	..	....	..	1 00
..	1 00	..	1 00	..	1 75														

Tanneries.—Employees'

NAME OF OPERATORS.	Hours worked per day.	Weeks in operation during the year.	Tanners.		Beam hands.		Yard.		Rollers and spongers.	
			Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
F. G. Shirk,	11	51	..	$1 00 to 1 50	..	....	..	....	..	....
Abraham Snavely,	10	....	..	....	..	$1 50	..	$1 25	..	....
D. S. Sichty,	....	....	..	....	..	75	..	....	..	....
James Singmaster,	10	50	..	1 25	..	....	..	....	..	....
Henry Gangware,	12	....	..	....	..	....	..	....	..	....
A. A. Eaton,	10	52	..	....	..	1 25	..	1 00	..	$1 00 to 1 25
Davis & Tompkins,	....	....	..	2 00	..	1 40	..	1 00	..	1 40
G. W. Hardenburg,	10	52	1	1 00 to 1 25	8	....	6	....	6	....
John Ford,	10	51	..	1 00	..	....	..	....	..	....
Spanogle & Pannebaker,	10	50	..	2 50	..	1 50	..	1 10	..	1 50
Stephen Kistler,		2	..	....	..	1 25 to 1 14	..	1 08	..	1 41⅔
Stephen Kistler,	10	....	..	....	21	1 40	11	1 08	36	1 50
Day, Wilcox & Co.,	10	....	..	1 00	..	1 20	..	....	..	1 30
W. R. Bennett,	10	....	..	1 25	..	....	..	....	..	....
John C. Morgan,	10	50	..	....	..	....	..	....	..	....
Addison & Miller,	10½	....	..	1 25						
D. M. Casselberry,	10	50	..	1 10	..	1 10	..	1 00	..	....
Benjamin F. Hess,	10	....	..	....	2	1 25	2	1 00		
A. D. Weidemhamer,	10	33	..	1 25	..	....	..	....	..	....
George Fulmer,	10	50	..	1 35	..	1 12½	..	1 12½	..	1 25
Ephraham Loux,	10	52	..	75						
J. M. Woolverton,	10	52	1	*15 00	..	....	..	....	..	....
Joseph Howell & Co.,	10	....	..	1 35	..	1 35	..	1 35	..	1 35
John A. Bechtel,	10	52	..	....	..	1 37	..	....	..	1 37
Keen & Coates,	10	52	..	1 50	..	1 66	..	....	..	1 50
P. H. Costello,	....	50	..	2 00	..	1 35	..	1 12	..	1 25
Shear & Jones,	....	....	..	....	..	....	..	....	..	....
D. Gememee Co.,	10	2	..	....	3	....		....	1	....
H. L. Dean & Bro.,	8	25	..	1 00	..	....	..	....	..	....
Jeremiah Wingert,	10	52	3	1 00	..	....	..	....	..	....
D. D. Stevens & Son,	10	51	..	....	..	†05	..	1 00	..	....
W. H. Osterhout,	10	52	..	2 00	..	1 00	..	1 00	..	1 25
J. H. & E. P. Munger,	10	....	..	1 00	..	1 00	..	1 00	..	1 00
A. Corbin & Co.,	10	50	..	1 25	..	1 08	..	1 00	..	1 25
A. G. Wier,	....	....	..	1 00	..	....	..	....	..	....
Hoyt Brothers,	10	51	..	1 40	..	†04½	..	1 25	..	†03½
O. B. Lowell & Co.,	11	50	..	....	..	1 25	..	1 12	..	....
Lowell & Co.,	11	52	..	2 36	..	1 25	..	1 12	..	87½ to 1 25
F. Eberle & Brother,	10	52	..	1 25	..	....	..	....	..	....
R. Hammond,	10	50	..	....	..	†04½	..	....	..	†08½
H. H. Crary & Co.,	....	....	..	2 00	..	1 25	..	1 25	..	1 15
Horton, Cray & Co.,	....	....	..	3 00	..	1 25	..	1 25	..	1 15
White & Co.,	10	52	..	....	..	1 25	..	1 25	..	1 00 to 1 25
T. H. Norris,	11	52	..	....	..	1 25 to 1 35	..	1 25	..	1 24 to 1 35
McConnell & Hurmans,	10	52	1	....	8	1 25	..	1 00 to 1 50	..	....
S. Smith,	....	52	5	1 00	1	1 00	..	....	..	....
Wefferling Bruning,	....	....	..	1 25	..	90	..	....	..	1 00
Ira Nichols,	12	0	..	2 00	..	1 25	..	85	..	1 00

Wages.—Continued.

Bark grinders		Common laborers.		Engineers.		Curriers		Splitters		Shavers.		Table hands, scourers.		Blackers		Finishers.		Other employees	
Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
..	...	1																	
..	$0 85																		
..	...	..	...	..	...	..	$1 50												
..	...	..	...	..	...	..	1 25	..	...	..	$1 25	..	$1 25	..	$1 25	..	$1 25	..	$0 70
1	25																		
..	1 00	..	$1 00																
4	...	25	...	..	...	..	...	..	...	..	...	..	...	..	...	..	...	5	
..	...	..	...	..	...	..	1 25												
..	1 00	..	1 00	..	...	..	...	..	...	..	...	..	...	..	...	..	...	..	40 to 75
..	1 25	..	90 to 1 00																
2	1 80	..	90																
..	90	..	90																
..	...	..	...	..	...	..	1 33	..	$2 00	..	1 83								
..	...	..	..	..	...	..	1 40	..	...	..	...	..	...	..	...	..	...	..	75
..	1 10	..	1 10	..	$1 10														
..	...	..	...	..	...	..	...	..	...	..	...	..	...	..	...	..	...	..	50
..	1 12½	..	1 00																
..	..	..	*8 00																
..	1 10	..	1 00																
..	1 00	..	1 10																
..	1 33	..	1 25																
..	1 00	..	1 00																
..	...	..	...	..	...	..	...	..	...	..	...	..	...	..	...	..	...	..	1 00 to 1 50
1	...	..	...	..	...	1	...	..	...	..	...	..	...	..	...	..	...	..	1 00 to 1 75
..	50	..	...	..	...	..	...	..	...	..	...	..	...	..	...	..	1 00		
..	25 to 50																		
..	...	..	1 00																
..	1 00	..	1 00	..	1 15	..	...	..	...	..	...	..	...	..	...	..	...	..	2 00
..	1 00	..	1 00																
..	1 00	..	1 00																
..	...	..	..	..	...	..	1 50												
..	1 00	..	1 12½ to 1 25	3	1 50 to 1 75														
..	...	..	1 00	..	1 37½														
..	1 00	..	1 00																
..	...	1	1 00																
..	†08½	..	*24 00																
..	1 00	..	1 00																
..	1 00	..	1 00																
..	1 00	..	1 00	..	...	..	...	..	...	..	...	..	...	..	...	..	...	..	50
..	...	..	1 15 to 1 25	..	...	..	...	..	...	..	...	..	...	..	...	..	...	..	75
2	75 to 1 25	5	1 00 to 1 50																
1	1 00	..	...	..	...	1	1 00	..	...	..	1 00	1	....	1	1 00	2	1 00	1	
..	90	..	90	..	1 25														
..	85	..	...	..	1 00	..	...	..	...	..	...	..	....	..	...	..	....	..	85

Tanneries —Employees'

NAME OF OPERATORS.	Hours worked per day.	Weeks in operation during the year.	Tanners.		Beam hands.		Yard.		Rollers and spongers.	
			Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
William Cromwell,	10	50	..	$1 00	..	$1 00	..	$1 00	.	$1 65
George W. Childs,	10	50	2	2 75	7	1 00	3	90	2	1 50
Smith Brothers,	10	50	..	....	2	1 25	..	....	..	...
John M. Habliston,	10	52	..	1 10	..	1 33	..	1 00	..	1 10
Jacob G. Bortner,	10½	52	1	1 00	..	....	..	....	..	....
Deardorff & Co.,	10	51	..	1 10						

* Month. † Per side.

Wages—Continued.

Bark grinders		Common laborers.		Engineers.		Curriers		Splitters		Shavers.		Table hands, scourers.		Blackers		Finishers.		Other employees.	
Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.	Number.	Wages.
. .	$1 00	. .	$1 00	. .	. . .	. .	. . .	. .	. . .	. .	. . .	. .	. . . .	. .	. . .	. .	. . . .	1	$1 33
2	90	14	90																
. .		1	1 00	1	$1 25	. .	. . .	.	. . .	. .	. . .	. .	. . . .	. .	. . .	1	$1 25	1	65
. .	1 00	. .	85																
1	82½	. .	. . .	1															

Allegheny county, two shavers, $1 66 to $3 per day.
Monroe county, one shaver, $1 83 per day.
Washington county, one shaver, $1 per day.
Lehigh county, one shaver, $1 25 per day.
Susquehanna county, one overseer, $1,200 per year.

Recapitulation.

The fol lowing tables are a recapitulation of the foregoing, showing the classification of employés, and the average daily, yearly, and weekly wages.

COUNTY.	Number of returns.	Tanners.	Beam hands.	Yard.	Rollers and spongers.	Bark grinders.	Common laborers.	Engineers.	Curriers.	Splitters.	Shavers.	Table hands—scourers.	Blackers.	Finishers.	Other employees.
Allegheny,	3	1	2	2	1	1	1	....	....	....	2	1	....	1	4
Beaver,	2	2	1	....	....	....	....	....	1	....	....	....	....	....	....
Bedford,	4	3	3	2	1	3	3	....	....	....	....	....	....	....	1
Berks,	1	1	....	....	....	1	....	....	....	....	....	....	....	....	....
Blair,	1	1	1	1	....	1	1	....	....	....	....	....	....	....	....
Bradford,	2	2	9	15	6	4	3	2	....	....	....	....	....	....	5
Bucks,	2	....	....	....	....	....	....	....	....	....	....	....	....	....	1
Cameron,	2	2	2	2	2	2	2	....	....	....	....	....	....	....	2
Centre,	3	....	1	1	....	1	1	....	....	....	....	....	....	....	....
Clearfield,	1	9	16	2	4	6	6	1	....	....	....	....	....	....	....
Clinton,	1	1	....	....	....	....	....	....	1	....	....	1	....	....	....
Columbia,	5	5	2	2	....	1	2	....	3	....	....	1	....	1	3
Crawford,	2	2	1	....	....	....	....	....	2	1	....	1	1	1	....
Cumberland,	3	1	....	....	....	....	....	....	....	....	....	....	....	....	1
Elk,	4	2	2	2	2	3	2	....	5	1	....	....	....	....	....
Erie,	4	3	5	4	1	2	2	1	1	1	....	....	....	....	....
Fayette,	1	1	1	1	....	1	1	....	....	....	....	....	....	....	....
Forest,	1	1	1	1	1	1	1	....	....	....	....	....	....	....	....
Franklin,	3	....	4	4	1	2	2	1	....	....	....	....	....	....	....
Greene,	1	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Huntingdon,	2	....	2	2	2	2	2	....	....	....	....	....	....	....	2
Indiana,	1	1	2	2	....	....	....	....	....	....	....	....	....	....	1
Juniata,	1	1	1	....	....	....	....	....	....	....	....	....	....	....	....
Lackawanna,	3	2	3	2	3	1	1	1	....	....	....	....	....	....	1
Lancaster,	4	4	2	1	....	1	....	....	1	....	....	....	....	....	....
Lehigh,	3	1	....	....	....	1	....	....	1	....	1	1	1	1	1
Luzerne,	3	1	2	2	2	1	1	....	....	....	....	....	....	....	....
Lycoming,	5	2	8	6	6	6	25	....	1	....	....	....	....	....	5
McKean,	1	1	....	....	....	....	....	....	1	....	....	....	....	....	....
Mifflin,	2	1	1	1	1	1	1	....	....	....	....	....	....	....	1
Monroe,	4	2	23	12	7	4	38	....	1	1	1	....	....	....	....
Montgomery,	5	2	2	2	....	1	1	1	1	....	....	....	....	....	1
Montour,	1	1	....	....	....	....	....	....	....	....	....	....	....	....	1

| | | |

RECAPITULATION.

COUNTY.	AVERAGE DAILY WAGES.							Average weeks employed.	AVERAGE EARNINGS.														Average hours employed.
									YEARLY.							WEEKLY—(FOR 52 WEEKS.)							
	Tanners.	Beam hands.	Yard hands and bark grinders.	Rollers and spongers	Curriers.	Engineers.	Other employees.		Tanners.	Beam hands.	Yard hands and bark grinders.	Rollers and spongers	Curriers.	Engineers.	Other employees.	Tanners.	Beam hands.	Yard hands and bark grinders.	Rollers and spongers	Curriers.	Engineers.	Other employees.	
Allegheny,	$1 83	$1 79	$1 37	$1 75	. .	. . .	$1 66	30	$329 40	$322 20	$246 60	$315 00	. . .	. . . .	$298 80	$6 33	$6 20	$4 74	$6 04	. . .	. . .	$5 75	10
Beaver,	1 41	1 00	.	.	$1 33	. . .	.	50	423 00	300 00	. . .	.	$399 0	. . .	.	8 3	5 77	.	.	$7 67			
Bedford,	1 85½	1 37	1 22	1 20	. .	. . .	84	52	585 00	4.7 44	380 64	374 40	. . .	. . . .	258 93	11 25	8 22	7 32	7 20	. . .	. . .	4 98	9
Berks,	1 12	. .	75	.	. .	. . .	.	52	349 44	.	234 00	. . .	. . .	. . . .	.	6 72	.	4 50	. . .	. . .	. . .	. . .	10
Blair,	2 50	1 50	1 12½	. . .	. . .	. . .	1 00	50	750 00	450 00	337 .0	. . .	. . .	. . . .	300 00	14 42	8 65	6 49	. . .	. . .	. . .	5 77	10
Bradford,	3 00	1 87½	1 10	1 20	. . .	$1 25	1 34½	51	918 00	420 75	336 60	367 20	. . . .	. . . .	$382 50	17 65	8 09	6 47	7 06	. . .	$7 36	7 92	10
Bucks,	. .	. .	25	. .	. .	. . .	85	52			78 00	.	. . . .	. . . .	265 20	. . .	.	1 50	. . .	. . .	. . .	5 10	10
Cameron,	1 78	1 35	1 16	1 22	. . .	. . .	91	52	555 35	421 20	351 92	380 64	. . . .	. . . .	283 92	10 68	8 10	6 96	7 32	. . .	. . .	5 46	
Centre,	. .	1 45	1 50	. .	. . .	. . .	1 12½	52	. .	412 40	468 00	. . . .	. . . .	. . . .	351 00		8 70	9 00	. . .	. . .	. . .	6 75	
Clearfield,	1 33	1 33	. . .	. . .	. . .	. . .	. .	48	383 04	383 04	. .	. . . .	. . . .	. . . .		7 37	7 37						
Clinton,	1 00	. .	. . .	. . .	1 00	. . .	1 00	50	300 00	.	. .	. . . .	300 00	. . . .	300 00	5 77	. .	. . .	. . .	5 77	. . .	5 77	10
Columbia,	1 44	1 50	1 00	. . .	1 62½	. . .	75	44	390 96	396 00	264 00	. . . .	429 00	. . . .	198 00	7 31	7 62	5 08	. . .	8 25	. . .	3 81	10
Cumberland,	75	. .	. . .	. . .	. .	. . .	51	33	148 50	.	. . .	. . .	. . .	. . . .	99 00	2 86	.	. . .	. . .	. . .	. . .	1 90	11
Crawford,	1 50	1 16	. .	. .	1 45½	. .	1 37	51	454 00	354 96	. . .	. . .	445 23	. . . .	419 22	8 83	6 82	. .	. .	8 56	. . .	8 06	10
Elk,	1 12½	1 25	1 11	1 19	1 50	. . .	1 17	50	337 50	375 00	333 00	357 00	450 00	. . . .	351 00	6 49	7 21	6 40	6 87	8 65	. . .	6 75	11
Erie,	1 20	1 33	94	1 40	1 50	1 40	1 30	50	360 00	399 00	282 00	420 00	450 00	420 00	390 00	6 92	6 67	5 42	8 08	8 65	8 08	7 50	10
Fayette,	. . .	1 71	1 19	.	. . .	. . .	1 00	51		523 26	364 14	. . . .	. . . .	. . . .	306 00	. .	10 06	7 00	. .	. . .	. . .	5 89	10
Forest,	2 00	. .	1 17½	1 25	. . .		1 17½	51	612 00	.	359 55	382 50	. . . .	. . .	359 55	11 77	. .	6 91	7 36	. . .	. . .	6 91	
Franklin,	1 05	1 05	83	1 00	. . .	90	75	51	321 30	321 30	253 98	306 00	. . . .	275 40	2.9 50	6 18	6 18	4 88	5 89	. . .	5 30	4 41	10
Greene,	1 00	. .	. .	. . .	. . .	. . .	.	52	312 00	.	. .	. . . .	. . . .	. . . .	.	6 00							
Huntingdon,	.	1 52½	1 16½	. . .	. . .	1 37½	1 58	51	.	466 65	356 49	. . . .	. . . .	420 75	483 48	. .	8 97	6 86	. . .	. . .	8 09	9 30	10
Indiana,	2 00	1 00	1 00	. . .	. . .	. . .	38	50	600 00	300 00	300 00	. . . .	. . . .	. . . .	114 00	11 54	5 77	5 77	. . .	. . .	. . .	2 19	10
Juniata,	1 00	50	. . .	. . .	. . .	. . .	.	52	312 00	156 00	. .	. . . .	. . . .	. . . .	. .	6 00	3 00	. . .	. . .	. . .	. . .	.	10
Lackawanna,	3 50	1 07½	1 08	1 12½	. . .	1 75	1 00	50	1050 00	3 2 50	324 00	340 50	.	525 00	330 00	20 19	6 20	6 23	6 54	. .	10 10	5 77	10
Lancaster,	1 25	1 12½	1 05	. . .	1 50	. . .	. .	51	382 50	344 25	321 30	. . . .	459 00	. . . .	. .	7 36	6 62	6 18	. . .	8 83	. . .	. .	10
Lehigh,	1 25	.	25	. . .	1 25	. . .	1 14	50	375 00		75 0	. . . .	375 00	. . . .	342 00	7 21	. .	1 44	. . .	7 21	. .	6 58	10½
Luzerne,	2 00	1 32½	1 00	1 26	. . .	. . .	1 00	52	624 00	413 40	312 00	393 12	. . . .	. . . .	312 00	12 00	7 95	6 00	7 56	. . .	. . .	6 00	9
Lycoming,	1 12½	. . .	. .	. .	. . .	. . .	.	52	351 00	.	. .	. . . .	. . . .	. . . .	.	6 75	. . .	. . .	. . .	. . .	. . .	. . .	10
McKean,	1 00	. .	. . .	. .	1 25	. . .	.	51	306 00	. .	. .	. . . .	382 50	. . . .	. .	5 88	. . .	. . .	. . .	7 36	. . .	.	10
Mifflin,	2 50	1 50	1 05	1 50	. . .	. . .	78½	42	630 00	378 00	264 60	378 00	. . . .	. . . .	197 82	12 12	7 27	5 09	7 27	. . .	. . .	3 80	10
Monroe,	1 12½	1 38	1 17	1 49	1 33	. . .	1 32	52	351 00	430 56	365 04	464 88	414 96	. . . .	411 84	6 75	8 28	7 02	8 94	7 98	. . .	7 92	10

Montgomery,	1 17½	1 17⅓	1 02½	. . .	1 40	1 10	92½	50	352 50	352 50	307 50	. . . .	420 00	330 00	277 50	6 78	6 78	5 91	. . .	8 08	6 35	5 34	10
Montour,	1 25	. . .	. . .	. . .	. . .	. . .	50	33	247 50	. . .	. . .	. . . .	. . .	. . . .	99 00	4 76	. . .	. . .	. . .	. . .	. . .	1 90	10
Northampton,	1 05	1 12½	1 12½	1 25	. . .	. . .	1 00	51	321 30	344 25	. . .	382 50	. . . .	. . . .	306 00	6 18	6 62	6 62	7 36	. . .	. . .	5 88	10
Northumberland,	57⅓	. . .	. . .	. . .	. . .	. . .	31	52	179 40	. . .	. . .	. . . .	. . .	. . . .	96 72	3 45	. . .	. . .	. . .	. . .	. . .	1 86	10
Perry,	1 35	1 36	1 15	1 36	. . .	. . .	1 05	52	424 32	424 32	358 80	424 32	. . . .	. . . .	327 60	8 10	8 16	6 90	8 16	. . .	. . .	6 30	
Philadelphia,	1 50	1 66	1 33	1 50	. . .	. . .	1 25	52	468 00	517 92	414 96	468 00	. . . .	. . . .	390 00	9 00	9 96	7 98	9 00	. . .	. . .	7 50	10
Potter,	2 00	1 35	1 06	1 25	. . .	. . .	1 12½	50	600 00	465 00	318 00	375 00	. . . .	. . . .	337 50	11 54	7 79	6 11	7 21	. . .	. . .	6 49	9
Schuylkill,	. . .	. . .	. . .	. . .	. . .	. . .	1 37	52	. . .	. . .	. . .	. . . .	. . .	. . . .	427 44	. . .	. . .	. . .	. . .	. . .	. . .	8 22	10
Somerset,	1 00	. . .	42½	. . .	. . .	. . .	1 00	43	258 00	. . .	112 23	. . . .	. . .	. . . .	258 00	4 96	. . .	2 16	. . .	. . .	. . .	4 96	10
Sullivan,	. . .	. . .	1 00	. . .	. . .	. . .	1 00	51	. . .	400 86	306 00	358 02	459 00	351 90	382 50	. . .	. . .	5 88	. . .	8 83	6 77	5 88	10
Susquehanna,	1 31	1 03	1 00	1 17	1 50	1 15	1 25	51	400 86	315 18	306 00	358 02	459 00	351 90	382 50	7 71	6 06	5 88	6 88	8 83	6 77	7 36	
Tioga,	1 75	1 25	1 11	1 11½	. . .	1 50	1 03	51	535 50	382 50	339 66	341 19	. . .	. . .	315 18	10 30	7 36	6 53	6 56	. . .	8 83	6 06	
Warren,	3 00	1 25	1 12	1 19	. . .	. . .	1 07	52	936 00	390 00	349 44	371 28	. . .	459 00	333 84	18 00	7 50	6 72	7 14	. . .	. . .	6 42	
Washington,	1 00	1 00	1 00	. . .	1 00	. . .	1 00	52	312 00	312 00	312 00	. . .	312 00	. . .	312 00	6 00	6 00	6 00	. . .	6 00	. . .	6 00	
Wayne,	1 43	1 05	92	1 02	. . .	1 12½	1 02	50	429 00	315 00	276 00	306 00	. . .	337 50	306 00	8 25	6 06	5 31	5 88	. . .	6 49	5 88	
Wyoming,	2 75	1 05½	90	1 50	. . .	1 25	91	50	825 00	316 50	270 00	450 00	. . .	375 00	273 00	15 86	6 09	5 19	8 65	. . .	7 21	5 25	10
York,	1 07	1 33	94	1 10	. . .	. . .	85	52	333 84	414 96	293 28	343 20	. . .	. . .	265 20	6 42	7 98	5 64	6 60	. . .	. . .	5 10	10

TOBACCO.

Lancaster county, Pennsylvania, has become noted for the large amount and excellent quality of tobacco raised by its industrious farmers. The skillful and economical manipulation of the soil, with a view of lucrative returns, practiced by these model agricultural workers, produces a marked friendly competition, both as to yield and quality, and as a result, the county is justly denominated as the "banner" tobacco district of the United States. The following article is from Frank H. Diffenderfer, of the Lancaster "New Era:"

1. The acreage of tobacco put out last year (1879,) was largely in excess of any previous year. In the absence of official statistics, I am inclined to put the acreage in this county at about 13,500 acres.

2. If all Lancaster county were planted with tobacco, the yield, in an ordinary season, would be double the entire product of the whole United States.

3. The yield, per acre, in 1879, will, I think, considerably exceed that of any previous year. I count upon an *average* production of 1,500 pounds to the acre—an extraordinary yield, all things considered. The general average is pulled down by some districts, where the average falls considerably below that. From 1,800 to 2,400 pounds were grown by many planters. Two thousand pounds were not regarded as an extraordinary yield.

4. The crop, all things considered, is the finest ever grown in this county. In addition to the heavy yield, the quality is also superior. There was an unusual development of leaf—forty and fifty inches in length having been common—besides which, its rapid growth towards the close of the season, resulted in giving it that soft, pliable, and silky character so much sought after by cigar manufacturers. The wrappery character of the leaf is such, that a larger amount of that class of goods will be obtained from a given quantity of pounds, than ever before.

5. The tobacco is packed in cases of a uniform size, containing about 400 pounds. The yield of the county cannot yet be accurately ascertained. From all the information at my command, derived from personal observation and by comparing notes with our best informed dealers, I think 50,000 cases, or 20,000,000 pounds, will pretty nearly represent the production of the county. For the whole State, 75,000 cases is, perhaps, a near approximation.

6. The prices realized thus far, have been very good. A majority of growers assort their tobacco into three classes, known as fillers, seconds, and

wrappers. The first named includes the lowest grade; the second, a kind slightly better, and the third, the best sort. These have been selling so far during the season, at from 3 to 5 cents for fillers; from 5 to 10 cents for seconds, and from 12 to 30 cents for wrappers. The fillers, in the 1879 crop, will not be more than one fourth of the total yield; that is to say, if an acre gives 2,000 pounds of tobacco, not more than 500 pounds would be fillers. Some crops have no seconds this year, proving the unusual excellence of the crop.

7. The crop of 1879 met with more drawbacks, than any before planted in this county. The spring was "late," to begin with. Then we had frosts, that killed many of the plants already set out, and some that still remained in the seed beds. The cut-worms were also very numerous, necessitating replanting to a great extent. Then came six weeks of drouth, which was worst of all, rendering artificial watering necessary. Later, when abundant rains had come, several very destructive hail storms swept over various portions of the county, doing much damage, some farmers suffering to the extent of $3,000. The after season was, however, so favorable, as to result in an unusual yield.

8. Although the yield was so great, with few exceptions, the acre put out by individual farmers was small. From one to three acres is the usual amount, although five, ten, and even twenty were planted on a single farm. Perhaps three fourths of the entire number had out less than five acres.

9. A number of cases have come to my knowledge, where the amount realized per acre was astonishingly great. Two hundred dollars was an every day occurrence; $300 per acre was nothing unusual, while in a number of instances, $500 were realized. The best result we know of, was where 15,800 plants were set out on three acres, producing 7,681 pounds of tobacco, or nearly half a pound per plant. This was sold at 25 cents through, realizing the fortunate owner $1,920 25, or $640 08 per acre.

10. The average price realized will be about 15 cents, all qualities taken together, which is about one cent higher than the crop of 1878 yielded its growers. Fifteen cents is a very high average, the greatest obtained for years, if not the greatest since tobacco culture has become a recognized pursuit amongst us. Should the present prices be maintained, and the entire crop be lifted at the prevailing rates, the crop of Lancaster county will be fully $2,500,000, and may even go beyond that. I prefer to make my estimate on the safe side, although I am aware that the crop has been estimated at $3,000,000. As much as 1,000,000 pounds have been received by the packing warehouses in Lancaster city in a single day, and our banks have paid out to farmers the very large sum of $175,000 in the same brief period. A single large firm will buy as much as $400,000 worth, while a number of other firms have made purchases amounting to $100,000.

11. For the convenient handling of this vast crop, a great number of large, convenient, and costly tobacco warehouses have been built all over the county. In this city alone there are about forty-six, and there are

nearly as many more through the county. These are worked to their utmost capacity at the present time. From twenty to eighty hands are constantly employed, and sometimes a double gang is employed at night, in order to keep the decks clear to receive the weed that is daily sent in.

12. The excellence of Lancaster county tobacco, and the high prices it commands, is largely due to the superior handling it receives. This is rendered possible through the fine tobacco barns, which now find a place on nearly all the planters' premises. Scores and scores of these structures have been put up within a few years past. They are large, commodious structures, from 25 to 40 feet wide, and from 60 to 100 feet long, with cellar underneath, where the tobacco can be dampened, and a stripping-room. Barns, costing $200,000 have gone up over the county in a single year, and the amount now invested in these structures is very great. They are so built, generally, that should it become necessary, they can be utilized for other farm uses.

13. The cultivation of tobacco among us, has given rise to the extraordinary development of a nearly allied industry. Cigar making is now one of our most prosperous industries. In the Ninth Internal Revenue district, embracing the counties of Lancaster, York, Cumberland, and Perry, there are 1,148 licensed cigar making establishments. In Lancaster county alone, the number of bonded hands is 1,800, of which 500 are females. During the fiscal year, ending June 30, 1879, the amount of revenue collected in this district from cigars alone, was $700,866, indicating a production of 116,811,000 cigars, which at the Government allowance of 25 pounds of raw tobacco for every 1,000 cigars, gives us a consumption of about 7,250 cases, or 2,900,000 pounds, manufactured here at home. The revenue from this source, during one of the closing months of last year, exceeded $100,000.

14. The first authentic statistics of the tobacco crop of this State, are for the year 1850, when our entire Commonwealth raised 3,500 cases, which realized 12 and 14 cents for wrappers, and proportionately less for the inferior grades."

PETROLEUM.

Previous to 1853, petroleum was produced by spreading bankets on the surface of the water in Seneca lake, where the oil accumulated, and when saturated, the blankets were wrung. The liquid was at that time called "Seneca Oil," deriving its name, doubtless, from the lake from which it was produced, and was used as a medicine. The illuminating qualities of petroleum was not a success, until between 1854 and 1857, owing to its explosive qualities, when it became known that this evil could be removed by distillation.

In the year 1858, a joint-stock company was formed for the purpose of boring into the rock in quest of oil, in Cherry Tree township, Venango county; when, after many difficulties, success attended their efforts, in August, 1859. This well produced, by pumping, an average of forty barrels per day. Henceforward, companies were formed, and drills set to work throughout that region. Wells were sunk and oil produced in Armstrong, Butler, and Clarion counties, and later Bradford county, whose product at present is over seventy-five per cent. of the whole production of the oil region.

Through the courtesy of S. H. Stowell, Esquire, we give the following petroleum statistics from "Stowell's Petroleum Reporter:"

Annual Review.

The petroleum business during the year just closed has been marked by many results never before attained. The enormous production of crude, (nearly 20,000,000 barrels,) exceeded the production of any previous year by about 5,000,000 barrels. The average price of crude at the wells for the year was 94⅜ cents per barrel, being 39⅝ less than for the year 1874, which has been considered heretofore the cheap oil year. The number of wells drilled during the year was 3,038, which number was not greatly in excess of former years, only about 6¼ per cent. of the wells completed proved to be dry or worthless, against 11⅓ per cent. of dry holes developed in 1878. The shipments out of the producing regions have been larger than in any previous year, amounting to nearly 16,000,000 barrels, which exceeded the shipments of 1878 nearly two and a quarter million barrels. The accumulation of stock in the producing regions of Pennsylvania during the year has been without a parallel in the history of the trade; the amount of stock January 1, 1879, was 4,615,299 barrels, and on January 1, 1880, 8,470,490 barrels, being an increase of 3,855,191 barrels in 1879. The

great Northern or Bradford district has contributed largely to these results, in fact, for the last two years this field has been the chief point of interest in the oil country, where most of the operators have congregated and most of the developments have taken place. In the last five years there have been about 6,000 wells drilled, 5,100 of which are now producing oil at the rate of about 45,000 barrels per day. The total production in that district, from August, 1875, to December 31, 1879, has been 21,991,544 barrels, and the shipments out have been 15,771,214 barrels, leaving a stock in tanks of about six and a quarter million of barrels. The exports of petroleum for the year have been unprecedently large, exceeding all former years by many million gallons. The stocks held in European ports are also quite large, exceeding the amount held at the same time in 1878, some 500,000 barrels.

The maximum production of crude petroleum in the Pennsylvania oil fields was reached in August, 1879, since that time the production has undoubtedly been steadily on the decline, and, from present indications, we may look for a continued decline, slowly but surely, until some new and now unknown field shall be found which shall yield the precious fluid bountifully.

There was a steady increase of stock at the wells during the first eight months of the year which was not reported and did not go into the account in making up productions and stocks. The pipe lines prior to September did not take from the wells their production, which was evident from the overflowing tanks everywhere to be seen in the Bradford district. Since the month of August, the wells have not only been relieved, but the lines have been taking all the production and steadily drawing on well stock. The month of December shows that the stock at the wells has been depleted about 182,250 barrels, which we have credited to productions and stock by distributing 750 barrels a day through the first eight months of the year.

General Statement.

Total stock January 1, 1880,	8,470,490	barrels.
Total stock January 1, 1879,	4,615,299	"
		"
Total increase in 1879,	3,855,191	"
Total shipments in 1879,	15,886,470	"
		"
Total production in 1879,	19,741,661	"
Total production daily, average,	54,087	"

The monthly production in 1879 and 1878 was as follows:

Months.	1879.	1878.
January,	1,369,921	1,203,296
February,	1,218,420	1,094,856
March,	1,499,315	1,208,380
April,	1,530,450	1,195,890
May,	1,644,922	1,264,862
June,	1,675,650	1,217,250
July,	1,737,767	1,283,865
August,	1,892,302	1,341,928
September,	1,856,700	1,315,710
October,	1,836,378	1,369,797
November,	1,710,480	1,348,950
December,	1,769,356	1,318,678
Totals,	19,741,661	15,163,462

The shipments out of the producing regions, in crude and refined, reduced to crude, equivalent each month, in 1879 and 1878, were as follows:

Months.	1879.	1878.
January,	663,998	775,791
February,	702,729	774,234
March,	973,879	741,512
April,	1,136,188	846,632
May,	1,331,469	968,894
June,	1,369,314	1,135,119
July,	1,625,035	1,330,454
August,	1,808,239	1,655,651
September,	1,627,120	1,434,225
October,	1,662,269	1,747,390
November,	1,453,645	1,281,410
December,	1,532,585	992,688
Totals,	15,886,470	13,676,000

The total amount of stock held in the producing regions at the close of each month in 1879 and 1878, was as follows:

MONTHS.	1879.	1878.
January,	5,321,222	3,555,342
February,	5,813,663	3,875,964
March,	6,318,099	4,342,832
April,	6,689,111	4,692,090
May,	6,980,064	4,996,058
June,	7,263,150	5,078,189
July,	7,353,382	5,031,600
August,	7,414,195	4,717,877
September,	7,620,525	4,599,362
October,	7,794,634	4,221,769
November,	8,051,469	4,289,309
December,	8,470,490	4,615,299

Shipments.

The shipments of crude from the northern field in December, were 1,216,121 barrels, and from the southern field, in crude and refined, reduced to crude, equivalent, 316,464 barrels, making the total shipments out of the producing regions for the month of December, 1,532,585 barrels. Of this amount

New York took	758,647	barrels.
Pittsburgh took	70,072	"
Cleveland took	242,415	"
Philadelphia took	221,743	"
Boston took	66,518	"
Baltimore took	77,310	"
Richmond took.		
Ohio river refiners,	27,257	"
Other local points,	68,623	"
Total shipments,	1,532,585	"

Included in the above shipments, there were 124,311 barrels of refined from Titusville and Oil City, which is equal to 186,466 barrels of crude.

Report of the Pennsylvania Oil Fields, by Districts, for December, 1879.

A barrel of oil in the *Reporter* is uniformly forty-two gallons.

Number and Name of District.	Production for the month.		Stock at the close of month.			Well account for month.						
										New wells.		
	Total.	Daily average.	At wells.	In iron tanks.	Total stock.	Number producing December 31.	Number Drilling December 31.	Number completed during the month.	Number dry holes during month.	Aggregate daily production.	Average daily product.	Number rigs building December 31.
	Bbls.	*Bbls.*	*Bbls.*	*Bbls.*	*Bbls.*					*Bbls.*	*Bbls.*	
1st. Butler, 2d. Parker, 3d. Clarion,	279,000	9,000	10,000	1,249,805	1,259,805	4,075	51	39	6	273	7	55
4th. Scrubgrass,	12,400	400	1,000	10,000	11,000	270	....	10	1	60	6	3
5th. Franklin,	8,060	260	400	25,000	25,400	350	2	4	1	12	3	4
6th. Reno,	3,100	100	.....	6,000	6,000	30						
7th. Oil City,	8,060	260	100	350,883	350,983	350	....	1	.....	.....	4	1
8th. Rousville,	7,750	250	100	10,000	10,100	200	1	1	.....	.....	3	
9th. Rynd Farm,	6,200	200	100	4,657	4,757	200	....	2	....	8	4	1
10th. Columbia,	2,666	86	5,600	.....	5,600	20						
11th. Petroleum Centre,	3,100	100	100	8,000	8,100	40						
12th. Shamburg,	3,100	100	200	7,000	7,200	90	....	3	.....	12	4	
13th. Titusville,	11,470	370	1,117	228,000	229,117	650	....	5	1	20	4	
14th. Pithole,	3,100	100	200	7,000	7,200	70	2	3	....	12	3	
15th. Fagundas,	4,650	150	1,000	22,000	23,000	150	....	3	.....	15	5	
16th. Tidioute,	9,300	300	2,000	148,000	150,000	115	....	4	1	15	3½	
17th. Warren,	3,100	100	1,000	5,000	6,000	100	2	2	...	8	4	2
18th. Bradford,	1,395,000	45,000	268,505	6,097,223	6,365,728	5,100	375	182	4	3,765	20 7-10	421
19th. Beaver,	9,300	300	500	.....	500	150	6	2	1	.....	2	3
Totals,	1,769,356	57,076	291,922	8,178,568	8,470,490	11,960	440	261	15	4,200	16 1-10	490

Total Shipments of rude and Refined reduced to Crude equivalent out of the Producing Region in December to the following Points:

RAILROADS.	BARRELS OF REFINED FROM CREEK, REDUCED TO CRUDE.					BARRELS OF CRUDE.								Total crude and crude equivalent.
	New York.	Philadelphia.	Baltimore.	Boston.	Local.	New York.	Philadelphia.	Baltimore.	Boston.	Cleveland.	Pittsburgh.	Down the Ohio.	Local.	
Rochester and State Line railroad,						112,003			11,433				4,325	127,761
N. Y., L. E. & W. railroad, (.3,273,)						218,147				109,601			8,697	336,445
Tide Water Pipe Company,						82,600	4,432						6,210	93,242
B., N. Y. & P. railroad,						141,380	40,293	76,972					6,299	264,944
P. & E. railroad, (138,675 Bradford to Creek)						84,667	157,114							241,781
P., T. & B. railroad,					9,168									9,468
D., A. V. & P. railroad,	34,517			42,879	16,059					3,693				97,148
L. S. & M. S. railroad,	7,992			4,290	2,911					3,000			1,170	19,363
A. & G. W. railroad,	48,605			7,916		643				214			1,655	59,033
A. V. railroad,					4,329	28,093	19,904	338			44,852	2,497		100,013
West Pennsylvania railroad,											12,756			12,756
Shenango and A. railroad,										124,407				124,407
Barge to Ohio river refiners,												11,639		11,639
Pipe, delivered at Pittsburgh,											12,464	13,121		25,585
Barges to C. & O. railroad.														
Cleveland and Pittsburgh,					7,500					1,500				9,000
Totals,	91,114			55,085	40,267	667,533	221,743	77,310	11,433	242,415	70,072	27,257	28,356	1,532,585

United Pipe Lines Report.

Following is a summary of the statement made by the United Pipe Lines, showing their condition at the close of business, December 31, 1879 :

	Barrels.
Crude petroleum in tanks and pipes, December 31, 1879,	7,362,409.16
Sediment and surplus,	294,571.37
Net stocks,	7,087,838.39
Outstanding acceptances, barrels,	4,235,459.40
Credit balances, barrels,	2,832,378.99
Total liabilities,	7,067,838.39
Crude petroleum received in December,	1,771,781.24
Crude petroleum delivered in December,	1,331,822.14

The following table exhibits the amount of oil in the United Lines represented by outstanding certificates and other vouchers at the close of each month in 1878 and 1879 :

OUTSTANDING CERTIFICATES.

	1878.	1879.
January 31,	864,711.41	2,153,763.73
February 28,	1,404,292 13	2,346,238.22
March 30,	1,487,439.50	2,485,884.83
April 30,	1,615,791.19	2,644,301.36
May 31,	2,065,333.31	2,522,486.36
June 30,	1,950,420.81	2,959,921.12
July 31,	2,078,469.56	3,323,295.32
August 31,	2,064,590.76	3,581,224.03
September 30,	1,705,853.95	3,783,480.38
October 31,	1,517,484.27	3,788,155.65
November 30,	1,784,443.35	3,972,300.18
December 31,	1,741,311.87	4,235,459.40

Tide-Water Statement.

The following table exhibits the condition of the Tide-Water Line at the close of December :

Total stock in iron and wood tanks,	680,371.61
Less water and sediment, estimate,	2,360.58
Net amount of oil in iron and wood tanks,	678,011,03
Contained in 63 tank cars in transit, capacity 107 $\frac{143}{1000}$ barrels each,	6,761.16

Contained in pipes, estimated,	20,391.86
Total barrels,	705,164.05
Total receipts for December,	114,352.19
Total deliveries month of December,	93,242.64
Total liability December,	705,164,05
Outstanding certificates, accepted orders or other vouchers,	588,400.00
Credit balances,	116,764.05

All the provisions of the act have been faithfully observed during the previous month.

No refined petroleum was in the custody of said company during the month of December, 1879, nor was said company liable during the month for the delivery of any refined petroleum.

[Signed.] D. B. STEWART.
J. G. BENTON.

The following table exhibits the amount of oil which changed hands at Oil City Oil Exchange, each month during the year, together with the average price for each month, and the number of business days:

MONTHS.	Days.	Average price.	Barrels.
January,	26	$1 02½	6,014,000
February,	23	97½	2,586,000
March,	26	86¼	4,817,000
April,	26	78⅛	4,673,000
May,	26	75⅝	4,520,000
June,	25	68¾	7,702,000
July,	26	67½	4,067,000
August,	27	64⅜	3,245,000
September,	25	69⅜	5,367,000
October,	27	87½	8,426,000
November,	25	1 01⅞	8,970,000
December,	25	1 22½	10,314,000
	307	85⅝	71,105,000
Add private sales, made quietly, say 15 per cent.,			10,665,750
Total sales and re-sales,			81,770,750
Daily average,			266,386
Total value at average price,			$70,030,204
Daily average business,			228,131

The "New York Shipping List," gives the total exports, as follows:

Total Export from the United States—Crude, Refined, &c.

FROM	TOTAL.		
	1879. Gallons.	**1878.** Gallons.	**1877.** Gallons.
New York,	293,992,095	214,723,657	247,965,845
Boston,	5,998,025	4,168,226	4,230,862
Philadelphia,	92,243,108	74,904,787	49,068,974
Baltimore,	22,966,928	37,712,900	44,858,164
Richmond,	2,328,370	901,138	3,123,072
Portland,	120,018		
Total,	417,648,544	332,410,700	349,246,917
Equal to barrels of 40 gallons,	10,441,213	8,310,268	8,731,173

Petroleum Exports, Production, and Home Trade.

The following table will show the exports of Crude, Refined, Napthas, Lubricating, and Residuum from the United States, for the first ten months of 1879, as reported by the Chief of the Bureau of Statistics, in gallons, which we have reduced to barrels of 42 gallons each, in crude equivalent. Also show the production during the same time, in the Pennsylvania Oil Fields. We also make an estimate of the amount taken by the home trade, based on production, exports, and stocks in the producing regions, which would be substantially correct, were it not for the fact, that there is no satisfactory data to determine whether the stocks held in the United States outside of the producing regions, have increased or decreased during the ten months under consideration.

1879. MONTHS.	EXPORTS.								PRODUCTION.		HOME TRADE ESTIMATED
	Crude—gallons.	Naphtha—gallons.	Illuminating—gallons.	Lubricating—gallons.	Residuum—gallons.	Total—gallons.	Total barrels of crude equivalent.	Daily average in crude equivalent.	For the month—barrels.	Daily average—barrels.	Daily average for home trade.
January,	1,090,041	1,200,398	15,720,910	119,778	293,706	18,424,863	528,359	17,366	1,369,921	44,191	5,124
February,	3,041,454	1,084,299	14,241,654	226,793	410,214	19,002,419	529,852	18,923	1,218,420	43,515	6,960
March,	3,547,850	704,855	15,578,247	275,818	144,102	20,300,852	583,777	18,928	1,492,315	48,365	13,237
April,	1,912,871	755,340	24,111,595	208,310	153,348	27,141,463	815,952	27,198	1,530,450	51,015	11,427
May,	2,65 5,891	663,206	27,567,185	324,156	297,800	31,438,238	945,070	30,486	1,644,922	53,062	13,214
June,	1,350,713	1,103,057	30,221,930	202,079	62,664	32,940,443	946,398	33,213	1,675,650	55,895	13,180
July,	3,297,347	1,364,552	44,972,481	203,818	194,082	50,032,280	1,511,089	48,744	1,737,767	56,057	4,426
August,	1,483,108	2,380,563	41,853,762	198,843	451,500	46,397,776	1,369,689	44,184	1,892,302	61,042	14,879
September,	2,496,609	2,048,414	40,046,705	141,400	328,272	45,058,910	1,384,123	44,471	1,856,700	60,292	10,100
October,	2,808,561	3,187,678	42,837,294	463,848	754,478	50,028,859	1,427,839	46,970	1,836,378	59,238	7,562
November,	2,921,488	1,795,528	32,684,161	251,571	769,062	38,424,810	1,113,213	35,910	1,710,480	57,016	12 515
December,	3,223,457	3,240,672	37,455,351	554,212	594,258	45,067,950	1,274,241	41,105	1,769,356	57,076	2,454
Totals,	27,841,900	19,524,552	367,321,235	3,170,671	4,457,486	424,258,893	12,162,572	33,322	19,741,661	54,087	9,463

Comparative Synopsis of Reports for November and December.

	1879.				1878.			
	November, 30 days.	December, 31 days.	Increase in December.	Decrease in December.	November, 30 days.	December, 31 days.	Increase in December.	Decrease in December.
Production for the month, barrels,	1,710,480	1,769,356	58,876	....	1,348,954	1,318,678	....	30,276
Daily average, barrels,	57,016	57,076	60	....	44,985	42,538	....	2,427
Stock at the wells, barrels,	291,922	291,922	...	...	83,909	308,417	224,508	
Iron tank stock, barrels,	7,759,547	8,178,568	419,021	....	4,205,400	4,306,882	101,482	
Total stock, barrels,	8,051,469	8,470,490	419,021	...	4,289,309	4,615,299	325,990	
Number of producing wells,	11,960	11,960	....	....	10,276	10,337	61	
Number of drilling wells,	372	440	68	....	297	218	....	79
Number drilling wells completed,	227	261	35	....	248	165	....	78
Number of dry holes,	21	15	....	6	18	13	....	5
Aggregate daily production of new wells, barrels,	4,459	4,200	....	259	2,963	2,170	1.1	
Average daily production of new wells, barrels,	20	16.1	....	3.9	12	13	1	
Number of rigs building,	437	490	53	....	305	246	....	59
Total shipments out of the region, barrels,	1,453,645	1,532,585	78,940	...	1,281,410	992,722	....	288,722

Pittsburgh's Reshipments of Refined, included in Crude Shipments to Pittsburgh.

	Barrels.
By Pennsylvania railroad, to New York, Philadelphia, and local points,	48,385
By Baltimore and Ohio railroad, to Baltimore,	..
By Ohio river, via Chesapeake and Ohio railroad, to Richmond,	..
By Atlantic and Great Western and Lake Shore and Michigan Southern railroad, west,	16,450
Total,	64,835
Total reduced to crude, equivalent of 42 gallons to the barrel,	97,253

Production.

Average daily production each month in the following years:

A. D.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Averages.
1870, . .	11,287	11,714	11,299	12,294	13,211	13,731	13,735	16,776	18,462	18,171	16,953	15,178	14,401
1871, . .	13,497	13,306	12,914	12,866	13,187	13,678	14,725	15,922	15,398	15,653	15,487	15,418	14,254
1872, . .	18,825	15,965	14,890	15,403	17,326	16,871	16,702	17,739	16,681	4,272	21,287	20,825	16,399
1873, . .	20,407	21,725	21,461	21,384	25,044	26,449	27,983	30,198	31,809	30,403	33,049	34,980	27,074
1874, . .	37,653	29,839	28,498	25,958	28,895	30,725	33,337	30,049	28,021	29,669	28,702	27,682	29,919
1875, . .	27,489	25,708	25,469	22,502	22,468	23,207	25,431	23,186	23,298	23,583	23,340	23,254	24,078
1876, . .	22,975	23,065	23,167	23,383	23,721	24,120	24,633	25,533	26,020	26,102	26,216	25,390	24,527
1877, . .	27,190	27,979	29,087	32,427	36,374	37,693	38,355	41,089	40,897	40,946	39,114	40,518	35,972
1878, . .	38,816	39,102	38,989	39,863	40,802	40,575	41,415	43,288	43,857	44,187	44,965	42,538	41,532
1879, . .	44,191	43,515	48,365	51,015	53,062	55,855	56,057	61,042	61,890	59,238	57,046	57,076	54,087

Shipments.

Shipment of crude, and refined reduced to crude equivalent, out of the producing region in the following years:

A. D.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Totals.
1870, . .	300,933	312,910	354,400	390,003	407,908	418,516	410,707	516,679	542,217	557,624	519,780	444,254	5,235,931
1871, . .	437,691	347,718	383,890	389,147	587,375	501,754	541,137	528,134	551,075	505,071	480,977	410,822	5,664,791
1872, . .	476,966	407,606	276,220	428,512	510,417	529,228	591,238	621,954	541,607	607,468	477,945	430,786	5,899,947
1873, . .	573,124	527,440	668,374	708,191	768,176	696,414	814,449	864,768	052,955	1,010,852	959,589	955,443	9,499,775
1874, . .	843,663	501,220	518,264	803,409	899,027	815,413	940,281	793,865	1,014,570	548,341	546,117	602,318	8,821,500
1875, . .	435,005	327.776	693,918	729,581	681,679	745,986	964,537	882,089	1,109,392	871,917	671,066	871,902	8,942,938
1876, . .	677,280	519.193	623,762	663,037	643,150	921,862	1,228,539	1,203,402	1,154,549	521,190	871,496	1,190,933	10,19 ,452
1877, . .	743.461	484,904	913 919	903,526	1,234,324	1,391,124	1,096,951	1,425,943	1,563,797	1,268,971	1,205,634	600,019	12,832,573
1878, . .	775,791	774,234	741,512	846,636	960,894	1,135,119	1,330,454	1,655,651	1,434,225	1,747,390	1,281,410	992,688	13,676,000
1879, . .	663,998	702,729	973,879	1,136,188	1,331,469	1,369,314	1,625,035	1,808,239	1,627,120	1,662,269	1,453,645	1,532,585	15,886,470

Stock.

Total stock of crude in the oil producing fields, at the close of each month in the following years :

A. D.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Averages.
1870, . .	340,154	342,390	351,474	328,609	329,908	351,168	321,840	356,908	419,477	473,896	576,014	554,626	395,539
1871, . .	537,751	587,021	642,000	771,000	605,000	554,000	511,220	530,146	541,300	495,102	502,960	532,000	575,550
1872, . .	532,971	579,793	662,479	877,832	950,803	1,010,302	990,229	997,166	951,410	914,423	886,909	1,084,423	869,896
1873, . .	1,183,728	1,205,373	1,244,657	1,178,643	1,192,541	1,321,493	1,433,620	1,513,890	1,521,185	1,452,777	1,493,875	1,625,157	1,369,161
1874, . .	1,948,919	2,283,032	2,648,210	2,623,534	2,594,286	2,701,625	2,279,479	2,932,444	2,758,504	3,134,902	3,449,845	3,705,639	2,755,035
1875, . .	4,104,703	4,496,751	4,592,364	4,537,843	4,552,672	4,502,896	4,386,720	4,223,397	3,812,945	3,672,101	3,701,235	3,550,200	4,177,819
1876, . .	3,585,143	3,734,835	3,829,250	3,900,703	3,989,904	3,791,642	3,326,726	3,304,405	2,930,456	3,040,108	2,955,092	2,824,739	3,434,417
1877, . .	2,604,128	2,660,636	3,210,454	3,279,731	3,173,008	2,912,674	3,004,728	2,852,544	2,503,657	2,504,012	2,471,795	3,127,837	2,875,434
1878, . .	3,555,342	3,875,964	4,342,832	4,692,090	4,996,058	5,078,189	5,031,600	4,717,877	4,599,362	4,221,769	4,289,300	4,615,299	4,501,308
1879, . .	5,321,222	5,813,663	6,318,099	6,689,111	6,980,064	7,263,150	7,353,352	7,414,195	7,620,525	7,794,634	8,051,469	8,470,490	7,090,834

Drilling Wells.

Number of drilling wells at the close of each month, in the following years :

A. D.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Averages.
1870, . .	430	433	480	449	443	363	354	288	264	224	180	147	334
1871, . .	140	173	240	279	356	303	329	330	439	486	477	394	329
1872, . .	363	369	313	302	386	301	359	392	301	311	354	318	342
1873, . .	361	349	227	177	228	395	340	267	197	163	137	60	233
1874, . .	37	55	99	213	225	210	180	128	107	82	57	54	121
1875, . .	40	40	45	64	127	162	118	96	132	170	179	168	112
1876, . .	142	151	230	267	307	340	353	374	511	565	618	493	362
1877, . .	457	463	395	448	512	395	365	417	535	573	565	426	463
1878, . .	334	326	379	409	376	266	188	185	240	282	297	218	292
1879, . .	265	328	406	468	460	384	329	258	270	313	372	440	357

MISCELLANEOUS MANUFACTURES.

Two hundred and forty-nine blanks were sent to the various miscellaneous industries throughout the State, of which eighty-five returned, and are tabulated separately, as follows:

AGRICULTURAL IMPLEMENTS.

Three returns only were received from manufactures of agricultural implements:

No. 1. Eureka Mower Company, located at Towanda, Bradford county.

Annual amount paid for wages of employés, about $15,000.

Amount paid for material used in business, about $18,000.

Approximate value of annual product, $35,000.

Present company organized December, 1878. Manufacture mowing machines.

Employs 30 persons.

No. 2. Manufacture hay rakes, fanning-mills, spokes, and all kind of wood bending material.

Operated by James H. Albright, Laurelton, Union county.

Employ 15 persons.

Annual wages paid employés, $800.

Value of material used in business, $2,000.

Value of annual product, $4,500.

These works were erected in 1864.

No. 3. Newtown Agricultural Works.

Operated by Buckman, Blaker& Co., Newtown, Bucks county. Erected in 1862. Build a general line of agricultural implements: Mowing and reaping machines, hay rakes, horse powers, and threshers, corn shellers, plows, &c.

Employ 37 persons.

Annual wages paid employés, $12,000.

Value of annual product, $30,000.

Number of tons of castings made during the year, 100 tons.

The following table shows the number employed, wages paid per day, &c.

NUMBER OF RETURN.	Hours worked per day.	Days worked during the year.	General superintendent.	General agent.	Foremen.	Molders.	Machinists.	Blacksmiths.	Pattern makers.	Carpenters.	Painters.	Wood workers.	Apprentices.	Laborers and other employees.
1,	10	250	1	1	3	6	10	...	...	3	...	...	...	6
2,	10	275	...	...	...	...	..	1	...	...	...	5	...	9
3,	10	264	..	...	1	7	7	6	1	6	4	...	2	3
Total,	...	...	1	1	4	13	17	7	1	9	4	5	2	18

Total number employed, 82.

The following table shows daily wages paid the above:

NUMBER OF RETURN.	General superintendent.	General agent.	Foremen.	Molders.	Machinists.	Blacksmiths.	Pattern makers.	Carpenters.	Painters.	Wood workers.	Apprentices.	Laborers and other employees.
1,	*$1,500	*$1,200	$2 00	$1 25 to 2 00	$1 50 to 2 25	...	...	$1 50 to 2 25	...	...	...	$1 00
2,	.....	.....	...	..	...	$1 25	...	...	..	$1 25	...	1 00
3.												

*Per annum.

Total amount paid in wages during the year exclusive of $2,700 paid to general superintendent and general agent, is $25,100.

TOTAL NUMBER PERSONS EMPLOYED,	Total amount paid in wages.	Average yearly earnings of each employee.	Average weekly earnings of each for 52 weeks.
80,	$25,100	$313 75	$6 03

AXES AND EDGE TOOLS.

Only four returns were reeeived from axe and edge tool manufactories.

No. 1. Ax manufactory, operated by Robert Mann & Son, Mill Hall, Clinton county.

Employ about 70 persons.

Value of annual product, $90,000.

Wages paid employés amount to $38,000.

Material used in business, $42,000.

These works were erected in 1847, burned and re-built in 1877.

No. 2. Ax manufactory, operated by Reuben Loveland, Lamar, Clinton connty. Was ereeted in 1845.

Employs 25 persons.

Value of annual product, from $20,000 to $25,000.

Wages paid employés, $8,000.

Material used in business, $8,200.

These works are run by water-power, and are situated about eight miles from the railroad. In consequence of the drouth, were unable to get out full work during the year. Employés are paid by the piece. Wages averaging from $25 to $55 per month.

No. 3. The Chester Edge Tool Works, H. B. Black, proprietor, Chester, Delaware county.

Employ 35 persons.

Annual wages paid, $13,223 85.

Material used in business, $12,774 44.

Value of annual product, $30,000.

The present works were erected in 1871, the principal characteristic of which, are, that they manufacture the original William Beatty & Son edge tools, being the same as manufactured by William Beatty, in 1806, and continued since his death by his son, John C. Beatty, who now superintends the works. Use the very best of Norway iron and English steel, and claim to manufacture a quality of tools equal to any in the world. The business, in common with all iron industries, has been very much depressed for several years past, but the outlook for the coming year is much more encouraging.

No. 4. J. Fearon Mann, Bellefonte, Centre county. Established in 1825.

Employ 50 persons.

Amount paid for wages of employés, $13,000.

Amount paid for material used in business, $13,000.

Value of annual product, $40,000.

Product, axes. Employés are paid by the dozen. Amount paid and average daily wages is not given. The works are in operation every working day throughout the year, except when undergoing repairs.

The following tables will show the number of persons employed, and wages paid per day, etc.:

NUMBER OF RETURN.	Hours worked per day.	Days in operation during the year.	Ax makers, foremen.	Heaters or helpers.	Bitt drawers.	Forgers or hammerers.	Grinders.	Polishers.	Finishers.	Painters.	Carpenters.	Temperers	Engineers.	Apprentices.	Other employees.	Total employees.
1, ...	7 to 8	*	4	13	3	6	16	10	3	. . .	. . .	4	. . .	. .	12	
2, ...	. . .	. . .	5	5	. . .	. . .	3	3	1	1	1	1	. .	. . .	5	
3, ...	9	280	. . .	6	. . .	7	4	4	4	.	. . .	2	1	3	4	
Total, .	.	. . .	9	24	3	13	23	17	8	1	1	7	1	3	21	131

* Full time.

Daily wages paid the foregoing:

NUMBER OF RETURN.	Ax makers, foremen.	Heaters or helpers.	Bitt drawers.	Forgers and hammerers.	Grinders.	Polishers.	Finishers.	Painters.	Carpenters.	Temperers.	Engineers.	Apprentices.	Other employees.
2,	$2 00	$1 25	...	...	$1 50	$1 35	$1 20	$1 25	$1 00	$1 50	...	...	$1 00 to 1 75
3,	...	1 25 to 2 25	...	$1 50 to 3 50	1 50 to 2 50	1 25 to 2 25	1 25 to 2 00	...	...	2 00	$1 50	$0 75 to 1 00	1 25 to 2 00

In all above trades employés work by the piece, the above is the average given. No. 1, states that employés all work by the piece, and make from $1 00 to $3 60 per day.

TOTAL NUMBER OF PERSONS EMPLOYED.	Total amount paid in wages.	Average yearly earnings of each employee.	Average weekly earnings of each for 52 weeks.
131,	$59,223 85	$452 09	$8 69

CUTLERY.

The only return received, was from the "Beaver Falls Cutlery Works," mainly owned by the Harmony Society, Messrs. Henrici and Lenz being the trustees. Mr. Henry T. Reeves is president of the company, and has personal supervision over the operating and business management of the concern. The works are located on the west bank of the Beaver river, covering an area of about two acres of ground. The buildings are substantially built of brick and stone, and were designed and erected with special reference to the requirements of this industry. They possess the most advantageous water-power, as well as steam, and in all the improved processes of hardening and tempering, they employ the natural gas from their own wells. These works were erected in 1868–9.

Employ 280 persons.

Annual wages paid, about $70,000.

Amount paid for material used in business, about $70,000.

Value of annual product, $150,000.

They manufacture table, pocket, and miscellaneous cutlery.

Employés.—Men average $1 35 per day. Total number, 210. Women average 60 cents per day. Total number, 30. Youth average 70 cents per day. Total number, 40.

They work 10 hours per day, and 300 days in the year.

BOLTS AND NUTS.

Only one return received.

F. M. Haslett & Co., Allegheny city, Allegheny county, commenced by present firm in 1876.

Employ 80 persons.

Amount paid annually for wages of employés, $25,000.

Amount paid for material used in business, $75,000.

Value of annual product, $110,000.

Days in operation during the year, 300.

Hours worked per day, 10.

Employés classified.—1 bookeeper, 1 clerk, 1 manager, 1 foreman, 5 machinists, 2 blacksmiths, 1 engineer, 10 feeders, 1 driver, 1 watchman, 4 laborers—total, 28. Boys, 52.

Average daily wages paid men, $2 00.

Average daily wages paid boys, 60 cents.

BRASS FOUNDRIES.

Three returns.

No. 1. Keystone Steam Pump Works and Brass Foundry, Thompson, Epping & Carpenter, Pittsburgh, Allegheny county. Erected about 1866.

Employ 12 persons.

Amount paid annually for wages of employés, $7,000.

Value of annual product, $30,000.

No. 2. Atwood & McCaffrey, Brass Founders, Iron Fitters and Machinists, Pittsburgh, Allegheny county. Erected in 1865.

Employ 50 persons.

Amount paid annually for wages of employés, from $28,000 to $35,000.

Value of annual product, $170,000.

No. 3. Reading Industrial Works, Miller, Printz & Co., Reading, Berks county. Erected in 1874.

Employ 16 persons.

Amount of brass castings made during the year, 11 tons.

Value of annual product, $25,000.

Amount paid for wages of employés, $7,000.

The number of persons employed, classified, and daily wages paid, are enumerated in the following tables:

Number of return.	Hours worked per day.	Weeks in operation during the year.	EMPLOYEES CLASSIFIED. NUMBER OF—										
			Foremen.	Machinists.	Brass founders.	Pattern makers.	Pipe fitters.	Engineers.	Drivers.	Blacksmiths.	Millwrights.	Laborers.	Boys.
1, . .	10	52	. . . .	8	1	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	3
2, . . .	10	52	1	29	4	2	7	1	2	. . . .	. . . .	4	
3, . . .	10	52	. . . .	7	1	1	1	. . . .	. . . .	1	3	. . . .	2
			1	44	6	3	8	1	2	1	3	4	5

Number of return.	AVERAGE DAILY WAGES PAID.										
	Foremen.	Machinists.	Brass founders.	Pattern makers.	Pipe fitters.	Engineers.	Drivers.	Blacksmiths.	Millwrights.	Laborers.	Boys.
1,	. . . . .	$2 50	$1 50	. . . . .	. . . . .	. . . . .	. . . . .	. . . .	. . . . .	. . . . .	$0 50 and 1 00
2,	$5 00	2 40	2 33	2 33	2 50	2 50	1 67	. . . .	. . . . .	1 37	
3,	. . . . .	1 80 to 3 00	2 50	2 50	2 00	. . . . .	. . . . .	2 50	1 70	. . . . .	50 to 1 00

CARRIAGES AND WAGONS.

Eight returns received:

No. 1. L. Glesenkamp & T. S. O'Neil, Pittsburgh, Allegheny county. Established in 1868.

Is four stories high. First floor front, office and ware-room, smith shop back; second floor, ware-room and wood shop; third floor, paint shop and framing shop; fourth, storage and stock-rooms. One stairway back and one front, also large elevator.

Number of persons employed, 33.

Amount paid annually for wages of employés, $20,584.

Amount paid for material used in business, $25,000.

Value of annual product, $55,000.

Product, carriages and buggies.

No. 2. George Schroeder & Sons, Mechanicsburg, Cumbertand county.

Four, three, and two stories high.

Means of escape in case of fire, very good.

Erected in 1858, 1865, and 1876.

Number of persons employed, 18.

Amount paid annually for wages, $9,000.

Amount paid for material used in business, $8,000.

Value of anual product, $25,000 to $30,000.

Product, buggies, carriages, wagons, &c.

No. 3. G. O. Stiver & Bro., Mill Hall, Clinton county.

Erected in 1870.

Employ 3 persons.

Product, heavy and light wagons.

No. 4. Boyer & Attick, Harrisburg, Dauphin county.

Erected in 1878.

Employ 8 persons.

Annual wages paid employés, $2,500.

Amount paid for material used in business, $1,600.

Value of annual product, $6,000.

Product, carriages and wagons and repairing.

No. 5. Erie City Carriage Works, Erie, Erie county.
Erected in 1870.
Employ 15 persons.
Amount paid annually for wages of employés, $4,000.
Amount paid for material used in business, $4,000.
Value of annual product, $10,000.
Product, carriages and buggies.

No. 6. A. Albright & Co., Easton, Northampton county.
Three-story building, with plenty of room to get out.
Built in 1857.
Employ from 12 to 16 persons.
Amount paid annually for wages, $3,000 to $4,000.
Material used in business, about $5,000.
Value of annual product, about $15,000.
Product, carriages, buggies, sleighs, &c., and repairing.

No. 7. William D. Rogers, Philadelphia.
Established in 1846.
Manufacture exclusively custom made carriages, for foreign and home customers.
Building four and five stories high, with ample means of escape in case of fire.
Employ 89 persons.
Amount paid annually for wages, $47,650 88.
Amount paid for material used in business, $35,486 48.
Value of annual product, $122,592 86.

No. 8. Wilson, Childs & Co., Philadelphia.
Erected in 1829.
Employ 120 persons.
Amount paid annually for wages of employés, $60,000.
Amount paid for material used in business, $65,000.
Value of annual product, $150,000.
Product, wagons, carts, &c.

The number of persons employed, and daily wages paid, are enumerated in the following tables:

Number of return.	Hours worked per day.	Days in operation during the year.	NUMBER OF— Superintendent.	Foremen, clerks, &c.	Book-keepers.	Blacksmiths.	Blacksmith's helpers.	Carriage part makers.	Wheel makers.	Body makers.	Finishers	Painters.	Trimmers.	Filers.	Watchman.	Teamsters.	Boys.	Men not specified.
1	10	307	. . .	. . .	. . .	. . .	. . .	. . .	. .	. . .	. . .	. .	. . .	. .	. .	. .	8	25
2	10	313	. . .	. . .	. . .	6	. . .	. .	1	2	2	5	2	. .	. .	. .	4	
3	10	313	. . .	. . .	. . .	1	. . .	. . .	. . .	2								
4	10	. . .	. . .	. . .	. . .	2	. . .	. . .	1	1	2	1	1					
5	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. .	. . .	. . .	. . .	. .		. .	. . .	15
6	10	300	. . .	. . .	. . .	3	. . .	. . .	. . .	3	. . .	4	2					
7	10	311	1	4	2	8	8	5	4	11	3	9	9	9	1	1	11	3
8	10	250	. . .	2	. . .	41	. .	. . .	30	. . .	. .	10	. .	. .	.	1	. . .	36
Total, ...			1	6	2	61	8	5	36	19	7	29	14	9	1	2	23	79

Number of return.	AVERAGE DAILY WAGES PAID. Superintendent.	Foremen, clerks, &c.	Book-keeper.	Blacksmiths.	Blacksmith's helpers.	Carriage part makers.	Wheel makers.	Body makers.	Finishers.	Painters.	Trimmers.	Filers.	Watchman.	Teamsters.	Boys.	Men not specified.
1	. . .	. . . .	. . .	. . . .	. . . .	. . . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	66	$2 33
2	. . .	. . . .	. . .	$2 25	. . . .	. . . .	$2 25	$2 25	$2 25	$2 25	$2 25	. . .	. . .	. . .	to $1 33	
3	. . .	. . . .	. . .	2 00	. . . .	. . . .	. .	1 50							1 00	
4	. . .	. . . .	. . .	1 35	. . . .	. . . .	1 35	1 35	1 35	1 35	1 35					
* 5																
6	. . .	. . .	. . .	1 50	. . . .	. . .	. . .	1 50	. .	1 50	1 50					
7	$3 50	$2 77	$2 75	2 50 to 3 00	$1 25	$2 25	2 50	2 50	2 50	2 50	2 25	$1 83	$1 50	$1 42	67	1 61
8	. . .	2 00	. .	2 00	. . . .	. . . .	2 00	. . .	. . .	2 00	. .	. . .	. . .	2 00	. . .	2 00

* Wages not given.

CHAIN WORKS.

Two returns.

No. 1. Empire Chain Works, Bradlee & Co., Philadelphia. Work-shop containing thirty forges, the chain being all hand made.

Employ 50 persons.

Amount paid annually for wages of employés, $8,543 21.

Amount paid for material used in business, $42,742 39.

Value of annual product, $74,973 34.

Works were erected in 1871. Manufactures chains and anchors. The classification of employés with daily wages, etc., are not given. Return states, that with the exception of foreman and colorers, men are all paid by piece work.

No. 2. American Chain Company, (Limited,) Philadelphia. Have not commenced operations, just getting under way.

FURNITURE.

Seven returns.

No. 1. G. Freeborn & Son, Allegheny city, Allegheny county. Established in 1847. Manufacture school and hall furniture.

Employ 15 persons.
Amount paid annually for wages of employés, $7,800.
Amount paid for material used in business, $6,500.
Value of annual product, $20,000.

No. 2. C. C. Dunnells & Co., Pittsburgh, Allegheny county.
Employ 6 persons.
Amount paid for material used in business, $4,000.
Manufacture office desks.

No. 3. J. O. Frost's Sons, Towanda, Bradford county. Erected in 1870.
Employ 20 persons.
Amount paid annually for wages of employés, from $4,000 to $6,000.
Amount paid for material used in business, about $5,000.
Value of annual product, from $15,000 to $20,000.
Product, furniture.

No. 4. Middletown Furniture Manufacturing Company, Middletown, Dauphin county. Erected in 1873.
Employ 41 persons.
Amount paid annually for wages of employés, $11,837 86.
Amount paid for material used in business, $18,075 76.
Value of annual product, $39,021 94.
Manufacture general cabinet ware.

No. 5. Hare & Co., Corry, Erie county. Erected in 1872 and 1873.
Employ 50 persons.
Amount paid annually for wages of employés, about $18,000.
Amount paid for material used in business, about $10,000.
Value of annual product, about $30,000.
Product, furniture.

No. 6. Philip Brown, Huntingdon, Huntingdon county. Erected in 1870.
Employ 5 persons.
Amount paid annually for wages, about $1,400.
Product, furniture, etc.

No. 7. Allen & Bro., Philadelphia.
Employ 80 persons.
Amount paid annually for wages of employés, about $40,000.
Amount paid for material used in business, about $70,000.
Value of annual product, about $125,000.
Product, cabinet-ware, curtains, and upholstery.

Number of persons employed, and average daily wages paid, are enumerated in the following tables:

Number of return.	Hours worked per day.	Days in operation during the year.	EMPLOYEES CLASSIFIED. NUMBER OF— Foremen.	Carvers.	Cabinet-makers.	Varnishers.	Finishers.	Engineers.	Upholsterers.	Laborers.	Women.	Apprentices.	Boys.	Employees not specified.
1	9	308	. . .	. . . .	8	2	. . . .	1	. . . .	. . .	. . .	. . . .	. . . .	4
2	9	. . . .	. . .	. . . .	. . . .	. . . .	. . . .	. . .	. . . .	. . .	. . .	. . . .	. . . .	6
3	9	200	. . .	. . . .	. . . .	. . . .	. . . .	. . .	. . . .	. . .	. . .	. . . .	3	17
4	9¾	302	1	. . . .	19	1	. . . .	1	. . . .	. . .	. . .	5	5	9
5	. . . .	275	3	. . . .	20	. . .	3	. . .	. . . .	6	. . .	. . . .	10	
6	8	313	. . .	. . . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . .	1	. . . .	5
7	10	310	2	10	30	. . .	18	. . .	10	. . .	3	. . . .	5	2
Total,	. . . .	. . . .	6	10	77	3	21	2	10	6	3	6	23	43

NUMBER OF RETURN.	AVERAGE DAILY WAGES PAID. Foremen.	Carvers.	Cabinet-makers.	Varnishers.	Finishers.	Engineers.	Upholsterers.	Laborers.	Women.	Apprentices.	Boys.	Employees not specified.
1,	. . .	. . .	$1 66⅔	$1 66⅔	. . .	$1 66⅔	. . .	. . .	. . .	. . .	. . .	$1 66⅔
2,	. . .	. . .	. . .	. . .	. . .	. .	. . .	. . .	. . .	. . .	.	1 50
3,	. . .	. . .	. . .	. . .	. . .	. .	. . .	. . .	. . .	. . .	$0 55	1 50
4,	$1 92	. . .	1 25	1 25	. . .	1 25	. . .	. . .	. . .	$0 34	75	1 25
5,	2 50	. . .	1 50	. . .	$1 20	. . .	. . .	$1 00	. . .	. . .	75	1 60
6,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	1 25
7,	3 75	$3 00	2 00	. . .	1 80	. . .	$2 35	. . .	$1 10	. . .	. . .	2 25

FIRE-BRICK.

Three returns received.

No. 1. James H. Welch & Co., Pittsburgh, Allegheny county. Establishment located at Vanport, Beaver county. Established in 1875.

Employ 13 persons.

Annual wages paid employés, about $5,000.

Value of annual product, about $20,000.

No. 2. Frederick Mann & Co., Farrandsville, Clinton county. Established in 1873.

Employ 65 persons.

Annual wages paid employés, about $22,000.

Amount paid for royalty and material used in business, about $6,000.

Value of annual product, $40,000.

No. 3. Harrisburg Fire-Brick Works, Harrisburg, Dauphin county. Established in 1869.

Employ 15 persons.

Annual wages paid employés, $4,200.

Amount paid for material used, $10,200.

Value of annual product, $18,000.

NUMBER OF RETURN.	Hours worked per day.	Days in operation during the year.	NUMBER OF EMPLOYEES.					AVERAGE DAILY WAGES.				
			Foremen.	Molders.	Laborers.	Boys.	Men not classified.	Foremen.	Molders.	Laborers.	Boys.	Men not classified.
*1,	10	300	1	2	4	3	1	$2 25	$1 50	$1 00	$0 50 and 75	$1 50
2,	8	270	...	...	...	5	60	...	...	...	80	1 25
3,	9	210	...	...	...	2	13	...	...	...	50	1 54

*Has two clay diggers paid at the rate of twenty-five cents per ton of 2,000 pounds. Average daily wages not given.

IRON BRIDGES, ROOFS, TURN-TABLES, &c.

Three returns received:

No. 1. Keystone Bridge Company, Pittsburgh, Allegheny county. Consists of smith shop, 80 by 300 feet; machine shop, 80 by 300 feet; fitting shop, 70 by 400 feet; foundry, 60 by 120 feet; pattern shop, 50 by 50 feet; with office and stable. The company manufacture all kinds of iron structures, such as railroad and roadway bridges, roofs, turn-tables, light-houses, &c. Was erected in 1869 and 1870.

Employ 516 persons.

Amount paid annually for wages of employés, $244,776 39.

Amount paid for materials used in business, $549,563 97.

Value of annual product, about $820,000.

No. 2. Kellogg & Maurice, Athens, Bradford county. Manufacture iron bridges, roofs, &c.

Erected in 1870, but increased, by new additions, between 1872 and 1877.

Employ from 150 to 250 persons.

Amount paid annually for wages of employés, including superintendents, clerks, &c., about from $70,000 to $85,000.

Amount paid for material used in business, from $180,000 to $315,000.

Value of annual product, from $250,000 to $400,000.

No. 3. Murray, McDougal & Co., (limited,) Milton, Northumberland county.

Manufacture iron bridges, railroad cars, and oil tanks.

Erected in 1864.

Number of persons employed, 373.

Amount paid for materials used in business, $393,462 94.

Value of annual product, $432,749 73.

Return states, "that the number of employés, and the amount of work done, is constantly varying, and to such an extent that it is impossible to do more than give such numbers and amounts as will be about an average for the year. The difference between amount paid for labor, &c., and value of annual product, is owing to the increased amount of material on hand."

The following tables shows the number of persons employed, classified according to their respeetive oeeupations, with daily wages, &c., of each, as returned:

Number of return.	Hours worked per per day.	Days in operation during the year.	NUMBER OF EMPLOYEES, CLASSIFIED. Foremen.	Blacksmiths.	Blacksmith's helpers.	Heaters and hammermen.	Machinists.	Riveters and fitters.	Carpenters.	Engineers.	Molders.	Pattern makers.	Painters.	Bridge builders.	Laborers.	Boys.	Other employees.	Boiler makers.
1,	10	313	14	19	30	13	65	55	8	2	6	4	7	142	122	29		
2,	10	300	8	6	16	. . .	9	15	. . .	. .	. .	6	. . .	*22	*100	4	5	
3,	10	300	8	18	. . .	. . .	6	. . .	80	. .	17	1	7	11	155	26	†32	†12
Total, . . .			30	43	46	13	80	70	88	2	23	11	14	175	377	59	37	12

*Average. † Fifty-six days per year.

Number of return.	AVERAGE DAILY WAGES PAID. Foremen.	Blacksmiths.	Blacksmith's helpers.	Heaters and hammermen.	Machinists.	Riveters and fitters.	Carpenters.	Engineers.	Molders.	Pattern makers.	Painters.	Bridge builders.	Laborers.	Boys.	Other employees.	Boiler makers.
1, ...	$3 87½	$2 00	$1 35	$2 55	$1 92½	$1 87½	$2 00	$2 25	$2 12½	$2 17½	$1 50	$2 00	$1 55	$0 70		
2, ...	2 40	2 00	1 20	. . .	1 50	*45	. . .	. .	. . .	2 30	. .	1 75	1 15	1 00	†$ 14	
3, ...	2 50	1 60	. . .	. . .	1 50	. .	1 25	. .	1 50	2 00	1 10	1 00	90	60	1 00	$1 75

*100 rivets. † 100 holes.

IRON SHIP BUILDING.

Delaware River Iron Ship Building and Engine Works, Chester, Delaware county. Manufaeture iron steamships, engines, and boilers of every description.

Employ 918 persons.

Amount paid annually for wages of employés, $421,751 33.

Amount paid for materials used in business, $1,000,000.

Value of annual product, $1,456,245 93.

The number of persons employed are classified, and daily wages paid, are given in the following tables. The hours of labor are nine hours per day in winter, and ten hours in summer.

Number of return.	Weeks in operation during the year.	NUMBER OF EMPLOYEES CLASSIFIED. Molders.	Machinists.	Boiler makers.	Blacksmiths.	Pattern makers.	Carpenters.	Joiners.	Coppersmiths.	Painters.	Draughtsmen.	Carmen.	Riggers.	Watchmen.	Boatyard men.	Apprentices.
	52	37	111	106	44	8	65	91	9	29	7	12	21	11	341	26

Number of return.	DAILY WAGES PAID.														
	Molders.	Machinists.	Boiler makers.	Blacksmiths.	Pattern makers.	Carpenters.	Joiners.	Coppersmiths.	Painters.	Draughtsmen.	Carmen.	Riggers.	Watchmen.	Boat-yard men.	Apprentices.
	$1 72	$1 86	$1 31	$1 70	$2 47	$1 90	$2 26	$2 15	$2 24	$1 97	$1 40	$1 68	$1 41	$1 57	$0 75 to 77

LOCKS.

Jacobus & Nimick Manufacturing Company, Pittsburgh, Allegheny county.

Establishment located in Chartiers township, Allegheny county.

Value in dollars of annual product, $300,000 to $400,000.

Whole number of persons employed, 265 at present.

Present building erected in 1877–78.

Amount paid annually for wages of employés, $65,000 to $90,000.

Amount paid for materials used in business, $80,000 to $100,000.

Incidental expenses, $40,000 to $50,000.

Manufacture door-locks, knobs, bronze hardware, scales, &c.

OCCUPATION AND CLASSIFICATION.	Number of men.	Number of women.	Number of apprentices.	Number of youth.	Daily wages paid men.	Daily wages paid women.	Daily wages paid apprentices.	Daily wages paid youth.
Packing-room,	2	9	....	....	$1 50	$0 75		
Molders, including foreman,	50	....	11	3	2 48	....	$1 60	$0 80
Japan-room,	3	....	....	7	1 75	....	....	60
Knob-room and cellar,	23	3	....	20	1 50	50	....	70
Engineer,	1	....	....	....	1 75			
Laborers,	7	....	....	....	1 15			
Watchman	1	....	....	....	2 00			
Rim-room lock-fitters,	16	4	....	24	1 70	65	....	90
Pattern makers,	5	....	2	....	2 45	....	1 00	1 00
Key makers and machine-room,	11	....	....	5	1 95	....	....	60
Plaiting-room,	1	....	....	6	2 00	....	....	75
Mortise-room—lock-fitters,	13	....	....	5	1 75	....	....	80
Scale-room and carpenters,	11	....	....	3	1 90	....	....	95
Polishers,	11	....	....	8	2 35	....	....	1 30

PAPER MANUFACTURE.

Eight returns received.

No. 1. W. & A. Mode, Modena, Chester county. Established in 1814, and extended in 1862.

Employ 26 persons.

Amount paid annually for wages of employés, $9,670.

Value of annual product, about $60,000.

Product book and other printing paper.

No. 2. W. A. & A. F. Mullin, Mount Holly Springs, Cumberland county. Established in 1812.

Employ 30 persons.

Amount paid annually for wages of employés, $7,000.

Value of annual product, $60,000.

Product, book paper.

No. 3. Papyrus Mills, Shryoek Brothers, Shippensburg, Cumberland county. Erected about 1866.

Employ about 20 persons.

Amount paid annually for wages of employés, about $6,000.

Amount for material used in business, from $8 to $9,000.

Value of annual product, about $30,000.

Product, straw binders and paper boards of all description.

No. 4. Mark Willcox, Glen Mills, Delaware county. Erected in 1838 and 1844.

The mills are not at present in operation, but preparing to start soon. Mr. Wilcox states that the business of paper making was originally started by his great grandfather, Thomas Willcox, at Ivy Mills, Delaware county, (about two miles from Glen Mills,) in 1729, and has continued through each successive generation in the same business to the present time. The original homestead being owned and occupied by the present proprietor of Glen Mills. The continental currency paper was manufactured by said Thomas Willcox, at Ivy Mills. The Glen Mills manufacture, when in operation, fine book, printing, bank note, bond, and parchment papers, and was employed for eight or ten years almost exclusively making paper for the United States Government for legal tender notes, national bank notes, United States bonds, internal revenue stamps; also, with the distinctive feature of the "patent localized fiber" paper for bank notes, &c.

Employs, when in full operation, about 40 persons.

Paying from $3 per week for women, to $12 per week for men.

No. 5. Franklin Paper Mills, Cochran & Young, North-East, Erie county. Erected in 1872.

Employ about 15 persons.

Value of annual product, about $50,000.

Manufacture printing paper.

No. 6. Norristown Paper Mill, Norristown, Montgomery county.

Employ 5 persons.

Amount paid annually for wages, about $2,000.

Value of annual product, about $12 or $15,000.

Product, book binders' boards.

No. 7. American Wood Paper Company, Royer's Ford, Montgomery county. Erected in 1853.

Employ 150 persons.

Amount paid annually for wages of employés, $60,000.

Amount paid for material used in business, $160,000.

Value of annual product, $225,000.
Product, card, envelope, manilla, and other papers.

No. 8. McCartney & Lutton, West Indiana, Indiana co. Re-built 1875.
Employ 13 persons.
Amount of product, 469¼ tons of straw boards.
Value in New York, $24,622.
Product, straw boards.

No. 9. Straw Boards Manufactory, William L. Heyser, agent, Chambersburg, Franklin county. Established in 1851.
Average number employed, 21 persons.
Amount paid annually for wages, about $6,000.
Amount paid for material used in business, about $13,000.
Value of annual product, about $28,000.
In operation about 300 days during the year.
Daily wages of employés average $1 per day.

Number of return.	Hours worked per day.	Days in operation during the year.	Employees' Classified. Number of—											
			Foremen.	Machinists.	Carpenters.	Engineers.	Machine tenders.	Finishers.	Firemen.	Men not specified.	Women.	Boys.	Laborers.	Other employees.
1	10 and 12	310	....	....	....	....	....	....	....	14	12			
2	10	300	....	....	....	....	....	....	....	18	12			
3	11	300	...	....	....	....	....	....	....	17	...	3		
4	Idle.													
5	8 and 10	....	2	1	....	....	....	....	....	...	1	...	11	
6	12	240	....	....	....	....	....	....	....	5				
7	10	...	....	5	2	2	6	4	4	10	10	...	1	
8	10 to 12	241	1	....	....	2	1	....	....	2	...	1	...	
Total,	....	....	3	6	2	4	7	4	4	66	35	4		

Number of return.	Average Daily Wages Paid.											
	Foremen.	Machinists.	Carpenter.	Engineers.	Machine tender.	Finisher.	Fireman.	Men not specified.	Women.	Boys.	Laborers.	Other employees.
1, ...	.....	....	....	....	....	...	....	$1 75	$0 62½			
2, ...	.....	....	....	....	....	....	....	1 25	60			
3, ...	.....	....	....	....	....	....	....	1 00	....	$0 40		
5, ...	$2 50	$1 75	....	....	....	....	....	.....	....	75	$ 50 to 1 25	
6, ...	.....	....	....	....	....	...	...	1 66⅔				
7, ...	.....	2 20	$1 92	$2 25	$2 10	$1 75	$1 52	1 71	81	....	1 70	$1 89
8, ...	4 00	....	....	1 60 and 2 00	2 15	....	....	1 35	....	65	....	1 00 and 1 25

PAPER HANGING.

Wilson & Fennimore, Philadelphia. Erected in 1870.

Employ 40 persons.

Amount paid annually for wages of employés, $16,087.

Amount paid for material used in business, $18,807 35.

Value of annual product, $47,122 71.

Number of return.	Hours worked per day.	Days in operation during the year.	EMPLOYEES CLASSIFIED. NUMBER OF—												
			Foreman.	Hand printers.	Machine printers	Color mixers.	Packer.	Machine tenders	Block cutters.	Designer.	Engineer.	Watchman.	Driver.	Apprentices.	Boys.
. . . .	10	275	1	7	2	3	1	1	2	1	1	1	1	2	17

Number of return.	AVERAGE DAILY WAGES PAID.												
	Foreman.	Hand printers.	Machine printers	Color mixers.	Packer.	Machine tender.	Block cutters.	Designer.	Engineer.	Watchman.	Driver.	Apprentices.	Boys.
	$4 00	$2 50	$2 50	$3 00	$1 80	$1 80	$3 00	$2 50	$2 50	$1 33½	$1 80	$1 00	$0 50

PRINTED BOOKS AND STATIONERY.

J. B. Lippincott & Co., Philadelphia. Building, front erected in 1862; rear in 1871, six stories high, with ample means of escape in case of fire.

Employ 370 persons.

Amount paid annually for wages, about $185,000.

Amount paid for materials used in business, about $700,000 in the whole business, (expenses large, but not enumerated.)

Whole amount of business, store, and manufactory, from $1,200,000 to $1,400,000.

Hours worked per day.	Days in operation during the year.	NUMBER OF EMPLOYEES.			AVERAGE DAILY WAGES PAID.		
		Men.	Women.	Apprentices.	Men.	Women.	Apprentices.
10	309	207	85	78	$2 50	$0 81	$0 68

PORTABLE ENGINES AND MISCELLANEOUS MANUFACTURES.

Three returns:

No. 1. Drilling tools, etc., operated by J. H. Luther, Karns City, Butler county. Erected in 1874. Has 2 engine lathes, upright drill, 2 steam

(650 pounds) hammers, 1 drill lathe, 6 forges, and small tools to match. Owing to depression in trade, have not been running to full capacity.

Employ at present 4 persons.

Paid last year for wages of employés, $4,000.

Value of annual product, about $11,000.

No. 2. Bootz Manufacturing Company, (limited,) Erie, Erie county. Manufacture wooden and iron ware. Erected in 1865.

Employ 24 persons.

Annual wages paid to employés, $8,200.

Amount paid for material used in business, $10,000.

Value of annual product, $20,000.

No. 3. Frick & Co., Waynesboro', Franklin county. Manufacture portable farm engines, also stationary engines, mill machinery, and portable circular saw-mills, etc. Erected in 1860.

Employ about 165 persons.

Amount paid annually for wages of employés, about $56,000.

Amount paid for material used in business, about $95,000.

Value of annual product, about $240,000.

The return does not classify the different occupations, nor the daily wages paid. The establishment works full time, and night work nearly all the year. Ten hours is a day's work.

The following tables enumerate the number of persons employed and classified of returns Nos. 1 and 2:

Number of Return.	Hours worked per day.	Days in operation during the year.	Foremen.	Machinists.	Blacksmith.	Carpenters.	Painters.	Engineers.	Laborers.	Apprentices.	Officemen.
1, ...	. . .	. . . .	. . .	2	1	. . .	. . .	1			
2, ...	10	221	2	4	. . .	4	2	1	4	5	2

Return No. 2 is the only one reporting daily wages paid, as shown in the following table:

Number of Return.	Foremen.	Machinist.	Blacksmith.	Carpenters.	Painters.	Engineers.	Laborers.	Apprentices.	Officemen.
2, ...	$2 25	$1 50	. . .	$1 50	$1 25	$1 25	$1 00	$0 50	$2 50

Total earnings for the year of the foregoing, $7,016 75.

The annual and weekly (52 weeks) earnings of each class are as follows:

OCCUPATION.	Average earnings for the year.	Average weekly earnings, (52 weeks.)
Foremen,	$497 25	$9 56
Machinists,	331 50	6 37
Carpenters,	331 50	6 37
Painters,	276 25	5 31
Engineers,	276 25	5 31
Laborers,	221 00	4 25
Apprentices,	110 50	2 12½
Officemen,	552 50	10 62½

RAILROAD AXLES AND OTHER FORGINGS.

Three returns received.

No. 1. Pittsburgh Forge and Iron Company, Allegheny City, Allegheny county. Established in 1864.

Employ 36 persons.

Annual capacity, 3,600 tons.

Value of annual product at present rates, (December, 1879,) $252,000.

Product, railroad axles and forgings of other shapes. (See rolling-mills.)

No. 2. Vulcan Forge, Park, Long & Co., Pittsburgh, Allegheny county.

Employ 32 persons.

Annual capacity, 1,200 tons.

Value of annual product, $100,000.

Product, railroad axles and forgings, steam-boat shafts and heavy machine forgings.

No. 3. Juniata Bolt Works and Valley Forge, Gillespie Brothers & Co., Pittsburgh, Allegheny county. Built 1877.

Employ 70 persons.

Annual capacity, 1,000 tons.

Value of annual product, $90,000.

Manufacture bolts, vises, sledges, hammers, and forgings of all kinds. Oil well supplies.

Number of return.	Hours worked per day.	Weeks in operation during the year.	Number of heating furnaces.	Number of hammers.	EMPLOYEES CLASSIFIED. NUMBER OF—										
					Hammermen.	Helpers at hammers.	Heaters.	Axle lathemen.	Engineers.	Blacksmiths.	Machinists.	Carpenters.	Firemen.	Laborers.	Boys.	Other employees
1,	10	. .	3	3	6	13	6	2	6	. . .	. .	. . .	1	1	. .	1
2,	. .	52	2	2	4	8	4	. . .	2	2	2	. . .	. . .	2	4	4
3,	13	52	. . .	5	5	3	3	. . .	1	8	9	1	. .	1	15	24
Total,	. . .	. . .	5	10	15	24	13	2	9	10	11	1	1	4	19	29

NUMBER OF RETURN.	AVERAGE DAILY WAGES PAID.											
	Hammermen.	Helpers at hammer.	Heaters.	Axle lathemen.	Engineers.	Blacksmiths.	Machinists.	Carpenters.	Firemen.	Laborers.	Boys.	Other employees
1,	$3 75	$1 65	$3 00	$2 50	$1 37½	. . .	. . .	. . .	$1 40	$1 15	. . .	$1 55
2,	*											
3,	3 25	1 50	1 75	. . .	. . .	$2 25	$2 00	$1 66⅔	. . .	1 50	$0 66⅔	

* Not given.

RAILROAD CAR MANUFACTURES.

Only five returns have been received.

No. 1. Middletown Car Works, operated by Michael Schall and Arthur King, of York, York county, are located at Middletown borough, Dauphin county.

Were erected in 1870, but, after being idle for many years, have lately been purchased by the above firm, and are about being put in operation.

No. 2. Harrisburg Car Manufacturing Company, Harrisburg, Dauphin county.

Erected in 1853.

Employ from 300 to 700 persons—710 being employed at present.

Amount paid annually for wages of employés, $173,500.

Amount paid for material used in business, $802,700.

Value of annual product, $1,004,388 20.

Manufacture railroad freight cars.

No. 3: The "Frederick & Co. Car Works, located at Whitehall, Lehigh county, were sold, in October, to McKee & Fuller, who will take possession March 1, 1880," and operated by Lehigh Car Manufacturing Company.

Were erected in 1865.

Employ 75 persons.

Amount paid annually for wages of employés, about $30,000.

Amount paid for material used in business, about $60,000.

Value of annual product, about $100,000.

Manufacture all kinds of cars, except passenger.

No. 4. Operated by Billmyer, Small & Co., York, York county.

Was erected in 1852, and enlarged between that date and 1872.

Average number employed, about 150 persons.

Amount paid annually for wages of employés, average about $40,000.

Amount paid for materials used in business, average about $90,000.

Value of annual product, average about $150,000.

Manufacture passenger and freight cars.

No. 5. Erie Car Works, (Limited,) Erie, Erie county.

Manufacture railroad cars. Erected in 1868.

Employ about 400 persons—380 men and 20 boys; pays men from $1 to $3 per day, and boys from 40 cents to 75 cents per day.

In operation 300 days during the year, and work 10 hours per day.

Amount annually paid for wages of employés, about $75,000.

Amount paid for material used in business, about $420,000.

Value of annual product, about $500,000.

The number of employés, and daily wages paid, &c., of returns Nos. 2, 3, 4 only, are enumerated in the following tables. No. 1 not having been in operation, and No. 5 not having classified their employés, only as shown above.

Number of return.	Hours worked per day.	Days in operation during the year.	Foremen.	Molders.	Machinists.	Blacksmiths.	Blacksmiths' helpers.	Carpenters.	Painters.	Pattern makers.	Engineer.	Laborers.	Boys.	Total employees.
2	10	Full time.	. . .	30	13	41	73	144	29	29	. . .	258	93	
3	10	300	. . .	. . .	22	14	. . . .	24	. . .	. .	. . .	9	6	
4	10	300	7	. . .	. . .	25	. . . .	100	. . .	. . .	1	20	5	
Totals, ...			7	30	35	80	73	268	29	29	1	287	104	943

The daily wages paid is enumerated in the following table:

Number of return.	Foremen.	Molders.	Machinists.	Blacksmiths.	Blacksmiths' helpers.	Carpenters.	Painters.	Pattern makers.	Engineer.	Laborers.	Boys.
2	. . . .	$1 80	$1 70	$1 80	$1 30	$1 50	$1 40	$1 40	. . .	$1 10	$0 70
3	. . . .	. . . .	1 00	1 10	. . . .	1 05	. . . .	. . . .	. . . .	80	80
4	$2 00	. . . .	. . . .	1 35	. . . .	1 05	. . . .	. . . .	1 75	90	50

The total earnings of above 943, for 300 days, is $342,450.

Total number persons employed.	Total earnings for the year.	Average yearly earnings of each employé.	Average weekly earnings of each for 52 weeks.
943	$32,500 00	$363 15	$6 98

LIGHT LOCOMOTIVES, AND RAILROAD SUPPLIES.

Three returns.

No. 1. Manufactures light locomotives. Operated by H. K. Porter & Co., Pittsburgh, Allegheny county. Erected in 1871.

Employ 115 persons.

Amount paid annually for wages of employés, $52,328 68.

Amount paid for material used in business, $38,725 65.

Value of annual product, $109,086 71.

The year being reckoned from April 1, 1878, to April 1, 1879. The labor memoranda being taken from last part in March, 1879.

No. 2. Railroad supplies. Operated by Jackson Manufacturing Company, Harrisburg, Dauphin county. Erected in 1879.

Employ 100 persons.

Amount paid annually for wages of employés, $40,000.

Amount paid for material used in business, $45,000.

Value of annual product, $100,000.

No. 3. Railroad Car and Spiral Springs. Operated by Culmer Spring Company, Pittsburgh, Allegheny county. Erected in 1874.

Employ from 25 to 35 persons.

Amount paid annually for wages of employés, $19,000 to $21,000.

Amount paid for material used in business, about $75,000.

Value of annual product from July 1, 1878, to July 1, 1879, $114,000.

The number of employés classified, and daily wages paid, &c., is enumerated in the following tables:

No. of return.	Hours worked per day.	Days in operation during the year.	Foundrymen.	Machinists.	Boilerandsheet workers.	Blacksmiths	Patternmakers.	Carpenters.	Grinders.	Coppersmiths.	Engineer.	B. helpers and laborers.	Night watchman.	Foreman, draughtsmen, clerks.	Apprentices and boys.	Storekeeper.
1	10	300	7	30	9	4	1	4	1	1	1	10	1	9	36	1
2	10	full.	. . .	40	. . .	22	4	. .	. .	. .	. .	34	. .			
3	9½	full.	. . .	15	. . .	. . .	. . .	. .	. .	. .	. .	. . .	. . .	. . . . .	15	
Totals, ...			7	85	9	26	5	4	1	1	1	44	1	9	51	1

The following table enumerates the daily wages of the above:

No. of return.	Foundrymen.	Machinists.	Boilerandsheet workers.	Blacksmiths.	Patternmakers.	Carpenters.	Grinders.	Coppersmiths.	Engineers.	Blacksmiths helpers and laborers.	Night watchman.	Foremen.	Draughtsmen and clerks.	Apprentices.	Boys.	Storekeeper.
1	$1 35 to 2 50	$2 00 av.	$2 15	$2 55 av.	$2 75	$1 95	$3 00	$2 25	$1 65	$1 30	$1 75	$4 49	$3 12½	$0 50 to 1 08½	$0 91½ to 1 55	$1 16⅔
2	. . .	1 60	. . .	1 50	1 90	. . .	. .	. . .	. . .	1 00						
*3																

* No. 3. Reports that he employs from 10 to 15 men. Wages from $2 to $3 per day, and from 10 to 15 youth, from $1 to $2 per day.

SASH, DOORS, ETC.

Seven returns received.

No. 1. Miller & King, Mechanicsburg, Cumberland county. Established in 1867.

Employ 7 persons.

Amount paid annually for wages of employés, $2,400.

Amount paid for material used in business, $4,000.

Value of annual product, $10,000.

Product, sash, doors, blinds, flooring, &c.

No. 2. Craighead & Freeland, Carlisle, Cumberland county. Established in 1871.

Employ from 6 to 10 persons.

Amount paid annually for wages of employés, from $1,200 to $1,500.

Amount paid for material used in business, from $8,000 to $10,000.

Value of annual product, $12,000 to $15,000.

No. 3. Ridgway Planing-Mill, Ridgway, Elk county. Established in 1878.

Employ 9 persons.

Amount paid annually for wages of employés, $3,000.

No. 4. F. Bauschard & Son, Erie, Erie county. Erected 1868.

Employ 17 persons.

Annual wages paid employés, from $7,000 to $8,500.

Paid for material used in business, from $7,000 to $9,000.

Value of annual product, from $16,000 to $20,000.

No. 5. A. Mitchell's-Planing Mill, Carbondale, Lackawanna county. Established in 1872.

Employ 2 persons.

Annual wages paid employés, about $1,100.

Paid for material used in business, $1,900.

Value of annual product, about $3,000.

No. 6. Bolton & Stimson, Norristown, Montgomery county. Established in 1854.

Employ 22 persons.

Annual wages paid employés, from $10,000 to $15,000.

No. 7. Billmyer, Small & Co., York and Wrightsville, York county. Established in 1847.

Employ 40 persons.

Annual wages paid employés, about $12,500.

Paid for material used in business, about $125,000.

Value of annual product, average $150,000.

NUMBER OF RETURN.	Hours worked per day.	Days in operation during the year.	EMPLOYEES' CLASSIFIED. NUMBER OF— Foremen.	Carpenters.	Machine operators	Engineers.	Turner.	Laborers.	Boys.	Men not classified.
1,	10	275	....	....	....	....	....	....	....	7
2,	10	300	....	....	....	....	....	....	....	8
3,	10	300	...	4	2	1	....	2		
4,	10	300	1	5	4	1	1	3	2	
6,	10	300	1	14	....	1	....	6		
7,	10	300	2	....	....	1	....	....	2	35
Total,			4	23	6	4	1	11	4	50

NUMBER OF RETURN.	AVERAGE DAILY WAGES PAID. Foremen.	Carpenters.	Machine operators	Engineers.	Turner.	Laborers.	Boys.	Men not classified.
1,	....	....	....	....	....	....	....	$1 25
2,	....	....	....	....	....	$1 00	....	1 50
3,	...	$1 75	$1 75	$2 00	...	1 12½		
4,	$3 00	1 75	2 00	1 50	$2 00	1 25	$0 85	
6,	2 25	1 87½	....	2 25	....	1 50		
7,	2 40	....	...	1 75	....	....	55	1 25

No. 5. Reports but two men. Daily wages not given.

SAWS, SAW TOOLS, SHOVELS, ETC.

Four returns.

No. 1. J. S. Liggett & Co., Allegheny City, Allegheny county. Erected in 1872. Manufacture axles and springs for vehicles, and the material used in their manufacture.

Employ 90 persons; when running to full capacity, from 100 to 125.

Annual capacity in finished product, 1,200 tons.

Value of annual product, $198,000.

No. 2. Emerson, Smith & Co., Beaver Falls, Beaver county. Erected in 1871.

Employ about 33 persons.

Amount paid annually for wages of employés, $20,000.

Amount paid for material used in business, from $20,000 to $25,000.

Value of annual product, about $80,000.

Product, saws.

No. 3. Henry Disston & Sons, Keystone Saw, Tool, Steel and File Works, Philadelphia. Established in 1840, re-built 1865 and 1872.

Employ 917 persons.

Amount paid annually for wages of employés, about $500,000.

Value of annual product, $1,250,000.

No. 4. B. Rowland & Co., Frankford, Philadelphia. Manufacture shovels, spades, and scoops. Erected, 1842.

Employ 30 persons.

Amount paid annually for wages of employés, $20,000.

Amount paid for material used in business, $50,000.

Value of annual product, $100,000.

Work the iron from the bar, and steel from the sheet, in the manufacture of goods; but purchase handles shaped, but prepare them for use.

The number of persons employed and daily wages paid, are enumerated in the following table:

Number of return.	Hours worked per day.	Days in operation during the year.	NUMBER OF—				DAILY WAGES PAID.			
			Men.	Women.	Apprentices.	Youth.	Men.	Women.	Apprentices.	Youth.
1	..	.....	90	.....	.....	.....	$2 00			
2	10	307	28	.....	1	4	2 15	.....	.....	$1 00 to 1 50
3	10	305	713	4	20	180	1 50 to 6 00	†	$0 50 to 1 00	33⅓ to 1 50
*4	10	350	30							
Total	.....	.....	861	4	21	184				

* No. 4 classifies employees as follows: 4 polishers, 1 varnisher, 2 putter's-up, 1 handle riveter, 5 finishers, 1 strap maker, and 3 shapers, at $2 00 per day; 1 trimmer and 1 engineer, at $2 25 per day; 6 hammermen, at $2 50; 1 clerk, at $3 00; and 4 laborers, at $1 50 per day.

† Contract work.

FILES AND RASPS.

Western File Company, (limited,) Beaver Falls, Beaver county. Established in 1869.

Employ 200 persons.

Amount paid for wages of employés, $70,000.

Amount paid for material used in business, $60,000.

Value of annual product, $207,000.

The number of each class employed, with daily wages paid, and time worked during the year, is not given.

SLATE.

Five returns received.

No. 1. The Locke Slate Company, Slatington, Lehigh county.

Employ 48 persons.

Annual wages paid employés, $12,871.

Paid for material used in business, $1,614.

Value of annual product, $17,516.

Product, roofing slate and slate flagging.

No. 2. North Peach Bottom Slate Company, Whitehall township, Lehigh county. Mill buildings and derricks erected between May, 1878, and July, 1879.

Employ 20 men.

Paid for wages of employés, $7,000.

For material used in business, paid $1,000.

Value of product, $5,000.

Manufacture and quarry slate. Quarry 100 feet by 100 feet, and 60 feet at deepest, sloping out to surface; just now getting into working order.

No. 3. Latshaw & Bros., Weaversville, Northampton county. Established in 1872.

Employ 25 persons.

Annual wages paid employés, $7,000.

Amount paid for material used in business, $1,000.

Value of annual product, $10,000.

Quarrying and manufacturing roofing slate, posts, and flagging, &c.

No. 4. A. J. Long, Mount Bethel, Northampton county. Established in 1875.

Employ 11 persons.

Annual wages paid employés, $3,200.

Paid for material used in business, $3,500.

Value of annual product, $8,000.

Product, school slates.

No. 5. John F. Pfefferle, Lynnport, Lehigh county. Main building erected ten years ago. Re-built and enlarged by present proprietor during 1878 and 1879, and the old machinery re-placed by new and improved machinery. When in full operation, will turn out from 500 to 1,000 feet of slate per day.

In building, and preparing buildings, paid for wages of employés, $9,000, and for materials, machinery, etc., $11,000.

Number of return.	Hours worked per day.	Days in operation during the year.	EMPLOYEES CLASSIFIED. NUMBER OF—									
			Foremen.	Quarrymen.	Slate dressers.	Blacksmith.	Carpenter..	Engineer.	Teamster.	Laborers.	Boys.	Men not classified.
1	10	233	4	11	2	1	1	1	1	21	4	2
2	10	290	....	....	....	....	....	.....	.....	.....	.....	20
3	10	250	....	....	....	....	....	.....	.....	.....	....	25
4	10	250	....	....	....	....	....	.....	.....	....	5	6
Total	....	..	4	11	2	1	1	1	1	21	9	53

Number of return.	AVERAGE DAILY WAGES PAID.									
	Foremen.	Quarrymen.	Slate dressers.	Blacksmith.	Carpenter.	Engineer.	Teamster.	Laborers.	Boys.	Men not classified.
1	$1 70	$1 40	$1 25	$1 80	$1 25	$1 40	$1 70	$1 00	$0 40	$0 80
2	.....	.....	.....	.....	.....	.....	.....	.....	.....	1 00
3	.....	.....	.....	.....	.....	.....	.....	.....	.....	1 15
4	.....	.....	.....	.....	.....	.....	.....	.....	70	1 50

STEAM BOILERS, TANKS, AND SHEET IRON WORK.

Four returns received.

No. 1. Operated by James Lappan & Co., Pittsburgh, Allegheny county. Erected in 1872.

Number of persons employed, average 25.

Paid annually for wages of employés, $15,000.

Amount paid for material used in business, $20,000.

Manufacture boilers, tanks, blast furnace easing, etc.

No. 2. Bauman, Sunday & Co., Pittsburgh, Allegheny county. Steam boilers, plate and sheet iron work, (repairing.)

Average number of persons employed, about 14.

Amount paid annually for wages of employés, $5,260.

Amount paid for material used in business, $3,100.

Value of annual product, $8,500.

Was erected in 1876.

No. 3. Sterling, Weidner & Reazer, Reading, Berks county. Manufacture steam boilers and sheet-iron work. Have full line of tools, viz: punching machine, bending rolls, shears, &c., run by a ten horse power engine, and twenty-five horse power steam boiler. Erected in 1873.

Employ 35 persons.

Amount paid annually for wages of employés, $5,000.

Amount paid for material used in business, $8,000.

Value of annual product, $18,000.

No. 4. Repairing and re-building boiler works. Operated by Lehigh Valley Railroad Company, Delano, Schuylkill county. Erected in 1869.

Number of persons employed, 17.

Amount of annual wages paid, about $8,500.

The number of employés classified, and daily wages paid, etc., will be shown in the following tables:

NUMBER OF RETURN.	Hours worked per day.	Days in operation during the year.	Foremen.	Boiler makers.	Helpers.	Laborers and holders-on.	Apprentices.	Boys.	Total employés.
1,	. . .	. . .	. . .	18	4	. . .	3		
2,	10	300	4	6	*2	. . .	. . .	2	
3,	10	300	. . .	15	. . .	15	5		
4,	10	300	1	7	. . .	5	4		
Total,	. . .	. . .	5	46	6	20	12	2	91

* Wages not given.

Total number employed, 91.

The daily wages paid the foregoing is enumerated in the following table:

NUMBER OF RETURN.	Foremen.	Boiler makers.	Helpers.	Laborers and holders-on.	Apprentices.	Boys.
1,	. . . . .	$2 25	$1 35	. . . . .	$1 00	
2,	$3 00	2 00	. . . . .	. . . . .	. . . . .	$0 60
3,	. . . . .	1 70	. . . . .	$0 90	40	
4,	2 80	2 00	. . . . .	1 15	1 12½	

Total earnings for the year, $42,645. Average, $490 40 per annum for each person.

The following table shows the annual and weekly earnings of each class:

OCCUPATIONS.	Average earnings for the year.	Average weekly earnings, (52 weeks.)
Foremen,	$888 00	$17 07
Boiler makers,	600 00	11 54
Laborers, helpers, and holders-on,	308 12½	5 92
Apprentices,	237 50	4 56
Boys,	180 00	3 46

STONE AND EARTHENWARE.

Four returns received.

No. 1. Philip Eiler, South Side Pottery, Pittsburgh, Allegheny county, Established in 1868.

Employ 6 persons.

Amount paid for wages of employés, $750.

Paid for material used in business, $250.

Value of annual product, $1,500.

Product, earthenware. Done no business during the first nine months of year 1879, but prospects are brightening for the future.

No. 2. L. B. & C. E. Dilliner, New Geneva, Fayette county. Established in 1874.

Employ but 3 persons, including the members of the firm.

Paid annually for wages of employés, $300.

Paid for material used in business, about $400.

Value of annual product, $1,200.

Product, stoneware.

No. 3. Alexander Conrad, New Geneva, Fayette county. Established in 1854.

Employ 3 persons.

Amount paid for wages of employés, $400.

Amount paid for material used in business, $250.

Value of annual product, $2,000.

Product, stoneware. Material procured in the vicinity of the shop, except glazing, which is obtained from New York.

No. 4. Mrs. William Berner, Pottsville, Schuylkill county. Established by William Berner, (deceased,) in 1858, and continued by his widow, executrix, since 1878.

Employ 5 persons.

Annual wages paid employés, $750.

Amount paid for material used in business, $250.

Value of annual product, $2,500.

Product, red earthenware, glazed pitchers, spittoons, cake dishes, &c.

NUMBER OF RETURN.	Hours worked per day.	Days in operation during the year.	EMPLOYEES, NUMBER OF.				AVERAGE DAILY WAGES PAID.			
			Foremen.	Turners.	Laborers.	Apprentices.	Foremen.	Turners.	Laborers.	Apprentices.
1,	10	45	1	2	3	....	$2 00	$1 50	$0 85	
2,	....	300	....	1	....	....	....	1 00		
3,	10	300	....	2	....	2	....	....	....	$0 46
4,	9	250	....	2	2	1	....	1 12½	1 00	50
Total,	....	....	1	7	5	3				

CLAY WARE.

The Moorehead Clay Works, Whitemarsh township, Montgomery county. Established in 1866.

Employ at present 23 persons. (For about four years have only been employing about one sixth of regular force.)

Annual wages paid employés, $3,620 28.

Paid for material used in business, about $8,000.

Value of annual product, about $30,000.

Product, ornamental and plain chimney pots, tiles, sewer and drain pipes, &c.

NUMBER OF RETURN.	Hours worked per day.	Days in operation during the year.	NUMBER OF EMPLOYEES, CLASSIFIED.											
			Superintendent.	Salesman.	Warehouseman.	Carpenter.	Engineer.	Mechanics.	Burner.	Laborers.	Teamster.	Watchmen.	Clerk.	Boys.
1, ...	10	310	1	1	1	1	1	5	1	5	1	1	1	4

Average daily wages paid superintendent, $2 67; salesman, $2 50; warehouseman, $1 67; carpenter, $1 50; engineer, $1 00; mechanics, $1 20 to $1 50; burner, $1 65; laborers, $1 00; teamster, $1 33; watchman, 67½ cents; clerk, $1 33; boys, 40 to 62½ cents.

WROUGHT-IRON PIPE.

Four returns received.

No. 1. Crescent Tube Company, (Limited,) Pittsburgh, Allegheny county.

Established about 1870.

Employ 365 persons.

Amount paid annually for wages of employés, $120,000 to $125,000.

Amount paid for material used in business, about $400,000.

Value of annual product, about $800,000, present capacity.

Product, black and galvanized wrought-iron pipe, boiler tubes, and all kinds of butt and lap-welded pipe, and oil well and line pipe.

No. 2. Albright, Son & Co., Allentown, Lehigh county.

Erected in 1858.

Employ 9 persons.

Amount paid annually for wages of employés, $4,546 99.

Amount paid for material used in business, $21,559 65.

Value of annual product, $30,187 22.

Product, tuyere, coil, and wrought iron pipe.

No. 3. James Hooven & Son, Norristown, Montgomery county.

Erected in 1879.
Annual capacity, 3,500 tons.
Number of feet of pipe produced, 1,830,000; sold, 1,650,000 feet.
Value of product, $100,000.
Anthracite coal used as fuel.
Employ 66 persons in pipe department.
Product, wrought-iron pipe.

No. 4. Joshua Rhodes & Co., Allegheny City, Allegheny county.
Erected in 1876.
Employ 222 persons.
Amount paid annually for wages, $96,000.
Paid for material used in business: For iron, $486,000; for coke, $10,400; for coal, $17,000; fire-brick, $2,000; galvanizing, $23,000; total, $538,400.
Value of annual product, $695,000.
Daily wages paid men, from $1 25 to $3 50.
Daily wages paid boys, 83 cents.
Number of hours worked per day, 10.
In operation all working days, except holidays.

Number of return.	Hours worked per day.	Days in operation during the year.	EMPLOYEES CLASSIFIED, NUMBER OF—													
			Managers.	Foremen.	Welders.	Furnacemen.	Machinists.	Blacksmiths.	Helpers.	Engineers.	Screw cutters.	Firemen.	Laborers.	Teamsters and watchmen.	Boys.	Employees not specified.
1	10	300	1	4	7	60	15	3	3	3	45	3	65	6	25	125
2	10	225	1	1	1	. . .	. . .	. .	4	1	. . .	. . .	. . .	. . . .	. .	1
3	10	132	1	. . .	4	16	2	2	2	. . .	7	. . .	14	. . . .	18	
Total, ...			3	5	12	76	17	5	9	4	52	3	79	6	43	126

Number of return.	AVERAGE DAILY WAGES PAID.													
	Manager.	Foremen.	Welders.	Furnacemen.	Machinists.	Blacksmiths.	Helpers.	Engineers.	Screw cutters.	Firemen.	Laborers.	Teamsters and watchmen.	Boys.	Employees not specified.
1	. . .	$2 25	$3 00	$1 50	$2 50	$2 75	$1 25	$2 25	$1 50	$1 25	$1 25	$1 75	$1 00	$1 25 to $1 50
2	$3 00	2 67	2 75	. . .	. . .	. .	1 30	1 50	. . .	. . .	. . .	. . . .	. . . .	2 67
3	. . .	. . .	2 50	1 37	2 00	2 00	1 40	. . .	1 00	. . .	1 10	. . . .	50 to 60	

EARNINGS.

The returns reeeived from employers show, in a majority of cases, the weekly wages paid to the employés, but as weekly wages does not give yearly earnings, the reports were tabulated upon the basis of fifty-two weeks, thus giving the average weekly and yearly earnings.

Many are misled as to the earnings of workingmen, upon the supposition that fifty-two weeks employment has been given during the year, and thus when multiplied by the full number of weeks, the earnings appear to foot up to a very fair sum, but when lost time is dedueted, and the aetual earnings are given by a division of fifty-two weeks, the sum is redueed very materially. To aseertain earnings from the wage workers' standpoint, one thousand one hundred and ninety-five circulars were mailed, five hundred and forty-seven being returned. Quite a number could not with any degree of intelligenee be tabulated. Of those reeeived, four hundred and ninety-eight were eompiled, which represent eighty-five different oeeupations. That the figures given are as thoroughly reliable as might be obtained by personal visitation, will admit of some doubt, but as all the faets are obtained by eorrespondence, we tabulated those that gave sueh information as were sufficiently intelligent to admit of eompilation. Ineluded in the circulars were questions as to expenses incident to maintenance of families, whieh, deducted from the earnings, show the actual financial ability of those who responded to plod along life's journey.

Returns of this charaeter have not been given in former reports, and the small percentage received, and their partial incompleteness, is attributed more espeeially to the faet that workingmen, as a rule, do not keep aeeurate yearly aeeounts of earnings and expenditures. Letters received at the Bureau indieate a disposition upon the part of many to hereafter give this matter strict attention. Added to this is the assuranee given by a large number whom we have met in personal intereourse, so that this feature of the work assigned to the Bureau will be greatly augmented in the future.

A summary of the average weekly wages, weeks worked, and yearly earnings of the various occupations returned are given in the following tables :

Table showing the average weekly wages of employés, the average weeks employed during the year, with the total earnings for the year 1879:

OCCUPATION.	AVERAGE.		
	Weekly wages.	Weeks worked.	Earnings for the year
Miners, coal, (anthracite,)	$9 28	43	$399 04
Miners, coal, (bituminous,)	8 51	40	340 40
Blast furnace employees,	9 04	48	433 92
Puddlers, (iron,)	15 14	38	575 32
Heaters, (iron,)	17 98	40	719 20
Rollers, (iron,)	23 52	37	870 24
Roll turners, (iron,)	40 97	44	1,802 68
Roughers, (iron,)	17 94	44	789 36
Catchers, (iron,)	9 50	45	427 50
Refiners, (iron,	16 97	46	780 62
Forgemen, (iron,)	15 56	39	606 84
Hammermen, (iron,)	17 50	40	700 00
Roll hands, (iron,) not specified,	22 66	47	1,065 02
Helpers, (iron,)	11 00	34	374 00
Shearer, sheet, (iron,)	18 90	43	812 70
Straightener, (iron,)	10 00	52	520 00
Hammer-driver,	12 00	43	516 00
Steel melters,	30 48	39	1,188 72
Steel converter,	16 50	22	363 00
Steel helper,	15 00	33½	502 50
Nailers,	19 27	36	693 72
Tack maker,	32 70	26	850 20
Nail cutter,	12 00	25	300 00
Spike maker,	9 00	48	432 00
Nail packer,	8 40	52	436 80
Rivet maker,	20 00	36	720 00
Wire drawer,	15 00	52	780 00
Pipe threader,	9 00	50	450 00
Molders, (iron,)	11 26	43	484 18
Blacksmiths,	10 33	48	495 84
Bricklayer,	12 87	43	553 41
Carpenters,	10 61	48	509 28
Cabinet makers,	7 80	46	358 80
Carriage makers,	8 62	48	413 76
Engineers,	15 10	48	724 80
Glass workers,	18 39	45	827 55
Machinists,	10 84	47	509 48
Painters,	9 86	42	414 12
Plasterers,	7 71	44	339 24
Printers,	8 66	50	433 00
Sawyers,	15 78	35	552 30
Shoemakers,	8 08	45	363 60
Stonecutters,	9 33	41	382 53
Stonemasons,	9 02	33	297 66
Tailors,	8 00	46	368 00
Hatters,	6 00	52	312 00
Tanners,	7 53	50	376 50
Tinsmiths,	11 12	51	567 12
Gasfitters,	10 50	36	378 00
Track foremen, (railroad,)	10 00	53	530 00
Brakemen, (railroad,)	11 91	49	585 06
Flagmen, (railroad,)	7 30	51	372 30
Firemen,	7 74	50	387 00
Teamsters,	8 50	46	391 00
Slater,	6 00	39	234 00
Quarrymen,	6 25	46	287 50
Laborers,	7 08	42	297 36
Butcher,	10 00	36	360 00
Caulker,	9 00	31	279 00
Coopers,	6 75	45	303 75
Brass finisher,	6 24	48	299 52
Iron ore miner,	9 00	48	432 00
Lead furnace helper,	7 00	41	287 00
Carpet weavers,	6 50	51	331 50
Loom fixer,	11 71	52	608 92
Beamer,	10 00	50	500 00
Dyer,	10 00	52	520 00

EMPLOYEES

Number of returns.	Occupations	County.	Age.	Years in present employ.	Day or piece work.	Average days work.	Price paid per—
1	Miner,	Bradford,	45	2¼	By the ton,	4½ tons,	
2	Do.	do.	47	6	" "	4 "	
3	Do.	Columbia,	55	5	" day,	5 feet,	
4	Do.	Dauphin,	31	10	" wagon	4 to 5 wagons	
5	Do.	do.	30	5	" "	3 to 4 "	
6	Do.	do.	43	*7	" car,	3 cars,	
7	Do.	do.	40	7	" yard,	⅓ of a yard,	
8	Do.	Lackawanna,	56	30	" ton,		$0 75
9	Do.	do.	34	10	" "	3 tons,	
10	Do.	do.	43	10	" car,	2½ cars,	
11	Do.	do.	33	*3	" "	7 "	
12	Do.	do.	38	20	" ton,	3 tons,	
13	Do.	do.	22	11	" "	12⅓ "	
14	Mining engineer,	do.	37	8	" month,		
15	Miner,	do.		1½	" ton,	13 tons,	
16	Do.	do.	48	12	" car,	6 cars,	
17	Do.	do.	44	11	" "	7 "	
18	Do.	do.	40	*11	" "	7 "	
19	Do.	do.	37	5½	" ton,	4⅘ tons,	
20	Do.	do.	51	23	" car,	6 cars,	72
21	Prop cutter,	do.	47	*7	" day,	20 props,	† 50
22	Laborer,	do.	29	15	" "		1 40
23	Miner,	Luzerne,	45	7	" car,	5 cars,	65
24	Do.	do.	45	*8	" "	12 "	
25	Do.	do.	50	14	" "	6 "	
26	Do.	do.	45	12	" "	7 "	
27	Do.	do.	47	28	" "	2 "	88
28	Do.	do.	39	12	" "	5 "	
29	Fire boss,	do.	41	2⅔	" day,		2 25
30	Time keeper,	do.	44	2½			
31	Miner,	Schuylkill,	27	5	By the day,		
32	Do.	do.	22	1½			
33	Do.	do.	34	7	By the yard,	1 yard,	2 75
34	Do.	do.	42	5	" "		
35	Do.	do.	54	15	" day,		1 40
36	Do.	do.	38	⅔	" car,	8 cars,	70
37	Do.	do.	57	7	" wagon		2 50
38	Do.	do.	33	2	" "	6 wagons,	
39	Do.	do.	50	7	" "	3 "	
40	Do.	do.	32	8	" car,	4 cars,	
41	Do.	do.	30	3	" yard,	½ yard,	
42	Do.	do.	34	6	" ton,	12 tons,	
43	Do.	do.	38				
44	Do.	do.	38	1	By the ton,	5 tons,	40
45	Do.	do.	45	¾	" car,	2½ cars,	
46	Do.	Northumberland,	29	2¼	" wagon	5 wagons,	
47	Do.	do.	48	2			
48	Do.	do.	45	2	By the wagon	4 wagons,	
49	Do.	do.	47	8	" "	2 "	
50	Do.	do.	38	12	" car,	3 cars,	
51	Do.	Luzerne,	41	5⅔	" day,	$1 50,	

* Months. † Ten props.

EARNINGS.

Present weekly wages.	Lost time in 1879.	Earnings for 1879.	Weekly wages in 1872.	Family.		How often are wages paid?	Earnings retained by employer on pay day.	Weeks in operation during the year.	Hours worked per day.	Value of working tools.
				Adults.	Children.					
$8 00	17 weeks,	$280 00	$15 00	3	7	Monthly,		35	12	$11 00
8 00	20 "	256 00	15 00	2	6	"		32	12	12 00
5 00	2 "	250 00	12 00	2		"		50	9	
8 50			12 00	2	3	"	3 weeks,		9	7 00
13 50	17 weeks,	472 00	16 50	2	3	"		35	10	3 00
12 00	10 "	240 00		2	5	"	3 weeks,	20	9	7 00
12 00		450 00	15 00	2	1	"	2 "		10	15 00
				2	3	"			10	10 00-12 00
7 00	2 weeks,	350 00	11 00	1		"		50	6 to 8	15 00
6 00				2	7	"	2 weeks,		9	12 50
6 00		250 00	9 00	2	3	"			10	15 00
6 00	2 weeks,	300 00	12 00	2	4	"	2 weeks,	50	9	15 00
6 90	13 "	269 10	10 20	1		"	1 "	39	9	
10 00		520 00		2	4	"		52	10	
8 43	15 weeks,	312 00	18 00	2	3	"		37	10	6 00
9 00				2	3	"	3 weeks,			7 00
11 20	4 weeks,	537 60	18 00	2	5	"		48	10	15 00
8 00		416 00	15 00	1		"	3 weeks,	52	8	7 00
8 00				2	4	"				14 00
		400 00		2	11	"			10	10 00
6 00		300 00		2	1	"			10	2 75
8 40	9 weeks,	361 20		1		"		43	10	
7 78	8 "	342 32	25 00	2	1	"	3 weeks,	44	10	25 00
13 00	17 "	455 00	16 20	2	4	"	1 "	35	10	25 00
10 00		520 00		2	3	"	1 "	52	10	40 00
10 00	2 weeks,	500 00		2	3	"	3 "	50	9	150 00
9 00	12 "	360 00		2	4	"	1 month,	40	10	13 00
10 00	12 "	400 00		2	5	"	2 "	40	10	20 00
12 00				2	5	"			8	
9 00		468 00		2	1	"		52	10	
9 00				1		No regular time,	4 weeks,		10	15 00
8 67	3 months	338 13		2	1	Monthly,	2 "	39	9	6 50
		300 00		2	6	"	1 "		8 to 9	13 15
9 50				2	6	"	2 "		9½ to 10	11 00
	6 months			2	4	"			10	10 00
10 00	2 weeks,	500 00	18 00	2	1	"	2 weeks,	50	9 to 10	10 00
15 00	5 "	705 00		1		"	2 "	47	9	5 00
7 00	7 "	315 00	15 00	1	3	"	2 "	45	10	18 00
12 00	2 "	600 00		2	4	"		50	10	8 00
11 00	7 "	495 00	16 00	2	3	"	3 weeks,	45	9	20 00
7 50	1 "	382 50	14 00	2	1	"	2 "	51	10	10 00
9 00			20 00	2	4	"	2 "		10	15 00
				2	3				10	
		500 00		2	6	Monthly,			9 to 12	14 00
8 10	25 weeks,	218 70		2	5	"		27	10	6 85
15 00	6 "	690 00		2	2	"	2 weeks,	46	10	10 00
9 00	17 "	315 00		2	6	"	3 "	35	10	10 00
10 00	17 "	350 00	25 00	2	4	"	3 "	35	10	10 00
10 00	8 "	440 00	18 00	2	5	"		44	9	15 00
10 00	12 "	400 00	18 00	2	1	"	2 weeks,	40	10	10 00
9 00	3 "	441 00		2	6	"	2 "	49	10	25 00

EMPLOYEES' EXPENDITURES.

NUMBER OF RETURNS.	FAMILY.		EARNINGS.				EXPENDITURES.								EXCESS OF—		Have your earnings for five years covered expenses?
	Adults.	Children.	Earnings of adults.	Earnings of those under sixteen years of age.	Wages for year of adults other than yourself.	Total earnings of family for the year.	Rent.	Fuel.	Groceries.	Clothing and dry goods.	Education.	Other expenses.	Recreation.	Total.	Expenses over earnings.	Earnings over expenses.	
1,	3	7	$280 00	$80 00	$200 00	$560 00	$48 00	$24 00	$540 00	$120 00	$3 00	$6 00	. . . . .	$741 00	$181 00	. . . . .	No.
2,	2	6	256 00	. . . . .	. . . . .	256 00	48 00	16 00	360 00	50 00	1 44	. . . . .	. . . . .	475 44	219 44	. . . . .	No.
3,	2	. . .	250 00	. . . . .	. . . . .	250 00	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	250 00	. . . . .	. . . . .	No.
4,	2	3	. . . . .	. . . . .	. . . . .	. . . . .	60 00	20 00	300 00	. . . . .	8 00	16 00	$10 00	414 00	. . . . .	. . . . .	About.
5,	2	3	472 50	. . . . .	. . . . .	472 50	84 00	21 00	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	No.
6,	2	5	240 00	. . . . .	. . . . .	240 00	48 00	12 00	310 00	75 00	. . . . .	. . . . .	. . . . .	445 00	205 00	. . . . .	No.
7,	2	1	450 00	. . . . .	. . . . .	450 00	60 00	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	400 00	. . . . .	$50 00	No.
8,	2	3	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	No.
9,	1	. . .	350 00	. . . . .	. . . . .	350 00	. . . . .	. . . . .	. . . . .	50 00	. . . . .	190 00	. . . . .	240 00	. . . . .	110 00	No.
10,	2	7	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	No.
11,	2	3	250 00	. . . . .	. . . . .	250 00	. . . . .	20 00	180 00	100 00	4 00	25 00	6 00	335 00	85 00	. . . . .	No.
12,	2	4	300 00	. . . . .	. . . . .	300 00	48 00	33 50	162 00	100 00	12 00	44 00	. . . . .	399 50	99 50	. . . . .	No.
13,	1	. . .	269 10	. . . . .	. . . . .	269 10	. . . . .	. . . . .	. . . . .	64 00	12 00	180 00	6 00	262 00	. . . . .	7 10	No.
14,	2	4	520 00	. . . . .	. . . . .	520 00	72 00	30 00	180 00	170 00	12 00	56 00	. . . . .	520 00	. . . . .	. . . . .	Yes.
15,	2	3	312 00	. . . . .	. . . . .	312 00	60 00	25 00	160 00	30 00	1 80	7 20	. . . . .	284 00	. . . . .	28 00	Yes.
16,	2	3	. . . . .	. . . . .	. . . . .	. . . . .	60 00	27 00	133 00	110 00	9 00	12 00	. . . . .	351 00	. . . . .	. . . . .	No.
17,	2	5	537 60	. . . . .	. . . . .	537 60	72 00	30 00	420 00	120 00	. . . . .	. . . . .	. . . . .	642 00	104 40	. . . . .	No.
18,	1	. . .	416 00	. . . . .	. . . . .	416 00	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	192 00	. . . . .	192 00	. . . . .	224 00	No.
19,	2	4	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	252 00	. . . . .	. . . . .	No.
20,	2	11	400 00	. . . . .	. . . . .	400 00	72 00	30 00	283 00	. . . . .	10 00	. . . . .	. . . . .	400 00	. . . . .	. . . . .	No.
21,	2	1	300 00	. . . . .	. . . . .	300 00	60 00	18 00	120 00	85 00	. . . . .	6 00	24 00	313 00	13 00	. . . . .	No.
22,	1	. . .	361 20	. . . . .	. . . . .	361 20	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	Yes.
23,	2	1	342 32	. . . . .	. . . . .	342 32	50 00	18 50	129 61	96 90	6 75	62 25	. . . . .	364 01	21 69	. . . . .	No.
24,	2	4	455 00	. . . . .	73 40	528 40	. . . . .	34 00	. . . . .	444 00	8 00	32 40	. . . . .	518 40	. . . . .	10 00	Yes.
25,	2	3	520 00	. . . . .	. . . . .	520 60	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	Yes.
26,	2	3	500 00	. . . . .	. . . . .	500 00	90 24	6 00	250 00	14 00	43 00	. . . . .	4 00	412 24	. . . . .	87 76	Yes.
27,	2	4	360 00	. . . . .	282 00	642 00	54 00	27 00	360 00	100 00	1 00	79 00	20 00	641 00	. . . . .	1 00	No.
28,	2	5	400 00	. . . . .	160 00	560 00	72 00	30 00	180 00	260 00	12 00	16 00	. . . . .	570 00	10 00	. . . . .	No.
29,	2	5	. . . . .	. . . . .	. . . . .	. . . . .	76 80	31 50	. . . . .	. . . .	6 00	. . . . .	. . . . .	114 30	. . . . .	. . . . .	Yes.
30,	2	1	468 00	. . . . .	. . . . .	468 00	82 00	12 90	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	No.
31,	1																
32,	2	1	338 13	. . . . .	. . . . .	338 13	38 50	15 00	184 97	65 66	8 40	25 00	. . . . .	337 53	. . . . .	60	Yes.
33,	2	6	300 00	. . . . .	. . . . .	300 00	60 00	16 40	148 50	25 00	5 00	60 00	. . . . .	314 90	14 90	. . . . .	No.

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EMPLOYEES'

Number of return.	Occupation.	County.	Age.	Years in present employ.	Day or piece work.	Average day's work.	Prices paid per—
1	Miner,	Allegheny,	50	3	By the bushel,	80 bushels,	
2	Do.	do.		½	" "	75 "	
3	Do.	do.	30	5	" "		
4	Do.	do.	34	6	" "	70 to 75 bush.	
5	Do.	do.	50	10	" "	63 "	
6	Do.	do.	36	10	" "	68 "	
7	Do.	do.	51	20	" "	60 "	
8	Do.	do.	22	10	" "	75 "	
9	Do.	do.	40	1⅔	" "	60 "	
10	Do.	do.	23	19	" "	85 "	
11	Do.	do.	56	10	" "	60 "	
12	Do.	do.	39	2	" "	50 "	
13	Do.	do.	44	2¼	" "	75 "	
14	Do.	do.	34	¾	" "	60 "	
15	Do.	do.	29	2	" "	60 to 75 "	
16	Do.	do.	29		" ton,		
17	Do.	do.	51	27	" bushel.	80 bushels,	
18	Do.	do.	29	9	" "	75 "	
19	Do.	do.	48	4	" "	50 "	
20	Do.	do.	48	17	" "	75 "	
21	Do.	do.	27	8	" ton,	3½ tons,	
22	Do.	do.		3¾	" bushel,	50 bushels,	
23	Do.	do.	24	10	" "	75 "	
24	Do.	do.	53	12	" "	50 to 75 "	
25	Do.	do.	38	2	" "	1½ cars,	
26	Do.	do.	48	½	" "	50 bushels,	
27	Do.	do.	40	¼	" "	80 "	
28	Do.	do.	48	9	" day.		
29	Do.	do.	45	4	" bushel,	100 bushels,	
30	Do.	do.	28	5	" "	75 to 100 "	
31	Do.	do.	49	17	" "	75 to 100 "	
32	Pit boss,	do.	57	20	" day,		
33	Check weighman,	do.	38	8	" "		
34	Laborer,	do.	35		" bushel,	75 bushels,	
35	Miner,	Armstrong,	60	5	" ton,	3 tons,	
36	Do.	Beaver,	56	¾	" "	2½ "	
37	Laborer,	do.	43	18	" day,		$1 50
38	Miner,	Bedford,	34	3	" ton,	6 tons,	30
39	Do.	do.	35	3	" day,	3½ "	
40	Do.	Butler,	55	4	" ton,	3 "	
41	Do.	Cambria,	49	11	" "	3 "	
42	Do.	do.	56	5	" "	3½ "	
43	Do.	do.	33	2¼	" "	4 "	
44	Do.	do.		2	" day,		1 60
45	Do.	do.	32	22	" ton,	3 tons,	
46	Do.	do.	33	6	" "	4 "	
47	Do.	do.	29	3½	" "	4 "	
48	Do.	do.	57	½	" "	4 "	
49	Do.	do.	31	3	" "	3½ "	
50	Do.	do.	45	5	" "	3 "	
51	Do.	do.	39	10	" "	3 "	
52	Do.	do.		2½	" "	3 "	45
53	Do.	do.	46	10	" "	3½ "	
54	Do.	do.	26		" "	3½ "	
55	Mining boss,	do.	39	5	" month,		
56	Miner,	Centre,	42	8	" ton,	4 tons,	
57	Do.	Clarion,	40		" "	2½ "	
58	Do.	do.	38		" "	3 "	
59	Do.	Clearfield,	30		" "	4 "	50
60	Do.	do.		2	" "	4 "	
61	Do.	do.	23	¾	" "	3 "	
62	Do.	do.	30	3	" "	$2 00	
63	Do.	do.	33	3	" "	1 50	
64	Do.	do.	39	3	" "	1 50	
65	Do.	do.	25	1	" "	1 60	
66	Do.	do.	38	4	" "	4 to 5 tous,	
67	Do.	do.	29	1¼	" "	4 to 6 "	
68	Do.	do.	28	3	" "	$1 50	
69	Do.	Elk,		12	" "	3 tons,	
70	Do.	do.	55	7	" "	3 "	

EARNINGS.

Present weekly wages.	Lost time in 1879.	Earnings for 1879.	Weekly wages in 1872.	Family.		How often are wages paid.	Earnings retained by employer on pay day	Weeks in operation during the year.	Hours worked per day.	Value of working tools.
				Adult's.	Children.					
$10 00	2 weeks,	$500 00	$20 00	2	6	Monthly,	2 weeks,	50	10	$20 00
. . .	. . . . .	. . . .	. . . .	2	2	"	. . . . .	. . .	10 to 11	13 00
9 00	4 weeks,	432 00	. . . .	2	4	"	. . . . .	48	10 to 14	7 00
9 50	. . . . .	. . . . .	. . . .		1	"	2 weeks,	. . . .	12 to 13	12 00
. . .	. . . . .	. . . .	. . . .	2	7	"	. . . . .	. . .	11	9 00
8 50	5 weeks,	399 50	. . . .	2	7	"	1 week,	47	13	9 00
. .	. . . .	220 00	. . . .	2	1	"	. . . .	. . . .	13	10 00
12 00	26 weeks,	312 00	. . . .	1	. . .	Semi-monthly,	1 week,	26	12	10 00
9 00	2 "	450 00	. . . .	1	2	Monthly,	. . . . .	50	9	12 00
. . .	. . . .	179 00	. . . .	2	8	"	. . . . .	. . . .	11	10 00
11 00	20 weeks,	352 00	20 00	2	3	"	1 week,	32	10	6 00
10 00	16 "	360 00	15 00	2	8	"	1 "	36	15	12 85
12 22	43 "	110 00	12 50	2	. . .	"	1 "	9	12	10 00
7 00	. . . .	. . . .	. . . .	2	3	"	2 "	. . . .	14	10 00
8 40	26 weeks,	218 40	15 00	2	1	"	2 "	26	13	7 50
6 90	7 "	310 50	18 00	2	2	"	2 "	45	10 to 14	12 00
12 00	31 "	252 00	. . . .	2	1	"	3 days,	21	12	12 00
12 50	2 "	625 00	15 00	2	2	"	2 weeks,	50	10	12 00
. .	22 "	300 00	18 00	2	2	Semi-monthly,	2 "	30	14	15 00
9 00	. . . . .	468 00	14 00	2	6	" "	1 "	52	11 to 12	6 00
10 00	1 week,	510 00	12 00	2	. . .	" "	. . . . .	51	10	10 00
8 00	12 "	320 00	. . . .	2	7	Monthly,	3 days,	40	10	10 00
	15 "	357 00	. . . .	1	. . .	"	3 "	. .	10 to 12	7 00
. . .	. . . . .	422 40	. . . .	2	3	"	2 "	. .	10 to 11	10 00
6 71	. . . . .	348 92	. . . .	2	4	"	2 weeks,	52	10 to 12	9 00
6 00	. . . . .	. . . .	. . . .	2	4	"	1 "	. . . .	10 to 12	5 00
10 00	28 weeks,	240 00	. . . .	2	2	"	. . . . .	24	14 to 16	12 00
. . .	23 "	. . . .	. . . .	2	5	"	1 week,	. . . .	10	
. . .	. . . .	225 00	. . . .	2	3	"	1 "	. .	12 to 15	7 00
. . .	26 weeks,	324 00	. . . .	2	. .	"	1 "	26	12 to 14	6 00
9 25	. . . . .	481 00	. . . .	2	9	"	1 "	52	12 to 16	8 00
. . .	. . . . .	1,950 00	25 00	2	7	"	. . . . .	52	10	8 00
13 61	41 weeks,	146 76	18 00	2	4	"	. . . . .	11	12	
10 00	39 "	150 00	. . . .	2	3	"	2 days,	13	14	10 00
9 00	8 "	396 00	. . .	2	4	"	3 weeks,	44	8 to 10	9 00
9 00	. . .	250 00	20 00	2	1	"	2 "	. . . .	10 to 12	20 00
9 00	26 weeks,	234 00	. .	2	2	"	2 "	. . 26	8 to 12	
9 00	4 "	432 00	20 00	2	9	"	. . . . .	48	10	10 00
7 00	. . . . .	. . . .	15 00	2	4	"	. . . . .	. . . .	10	
8 08	. . . . .	420 00	15 00	2	3	"	2 weeks,	52	10	8 00
6 25	. . . . .	325 00	12 50	2	7	"	1 month,	52	10	25 00
6 00	2 weeks,	300 00	12 00	2	6	"	. . . . .	50	10	8 00
6 00	12 "	240 00	12 00	2	. . .	"	2 weeks,	40	9	4 00
6 00	. . . .	. . . .	. . . .	1	. . .	"	. . . . .	. . . .	10	
10 00	4 weeks,	480 00	15 00	2	3	"	. . . . .	48	8	20 00
6 00	. . . . .	. . . .	. . .	2	5	"	3 weeks,	. . . .	10	8 00
8 00	. . . . .	. . . .	. . . .	2	2	"	2 "	. . . .	10	10 00
6 50	13 weeks,	253 50	18 50	3	1	"	. . . . .	39	10	8 00
9 00	3 "		. . . .	1	. . .	"	1 week,	. . . .	9	12 00
5 31	. . . . .	276 00	. . . .	2	3	"	. . . . .	. .	10	10 00
7 00	. . . .	364 00	. . . .	2	4	"	. . . . .	52	10	10 00
8 00	. . . . .	416 00	. .	2	6	"	. . . . .	52	9	5 00
9 00	. . . . .	468 00	16 00	2	5	"	. .	52	9	25 00
6 00	. . . . .	205 00	12 00	1	. . .	"	2 weeks,	. . . .	10	10 00
. . .	. . . . .	900 00	. . . .	2	4	"	3 "	. . .		
10 00	26 weeks,	260 00	15 00	2	4	"	. . . . .	26	10 to 12	12 00
8 00	14 "	304 00	15 00	2	4	"	2 weeks,	38	10 to 12	10 00
8 75	. . . .	238 00	12 50	2	5	"	. . . . .	. . . .	10 to 12	8 50
9 00	. . . . .	. . . .	. .	1	. . .	"	3 "	. . . .	12 to 14	5 00
8 08	7 weeks,	363 60	15 00	2	2	"	3 "	45	10	8 00
7 50	13 "	292 50	. . . .	2	3	"	2 "	39	10	15 00
10 00	2 "	500 00	. . . .	2	4	"	3 "	50	10	30 00
9 00	8 "	396 00	. .	2	1	"	3 "	44	10	12 00
9 00	17 "	315 00	12 00	2	7	"	3 "	35	10	15 00
6 75	13 "	263 25	. . . .	2	3	"	3 "	39	11	8 00
7 00	. . . . .	. . . .	. .	2	6	"	2 "	. . . .	9	11 00
8 00	17 weeks,	280 00	17 50	2	5	"	2 "	35	9	11 00
9 00	. . . . .	468 00	15 00	1	4	"	. . . . .	52	11	10 25
8 10	6 weeks,	372 60	. . . .	2	5	"	1 month,	46	12	12 00
9 00	8 "	396 00	. . . .		1	"	. . . . .	44	10	12 00

EMPLOYEES'

Number of returns.	Occupation.	County.	Age.	Years in present employ.	Day or piece work.	Average day's work.	Prices paid per—
71	Miner,	Elk,	37	3	By the day,	4 tons,	
72	Do.	do.	25	1	" ton,	3 "	
73	Do.	Fayette,	28	2	" bushel,	75 bushels,	
74	Do.	do.	59	24	" "	75 "	
75	Do.	Huntingdon,	29		" ton,	3 tons,	
76	Do.	do.	31	4½	" "	3 "	50
77	Do.	do.			" "	3 to 3½ tons,	
78	Do.	do.	53	20	" "		$0 50
79	Do.	do.	23		" "	2 tons,	
80	Laborer,	do.	41		" day,		
81	Do.	do.	32	1	" "	$1 25	
82	Miner,	Jefferson,			" ton,		
83	Do.	do.	40		" "	4 tons,	54
84	Do.	Lycoming,	46		" "	3 "	
85	Do.	do.	34	9	" day,	$2 00	
86	Do.	McKean,	30	2½	" ton,	1 25	
87	Do.	do.		2	" "	2½ tons,	
88	Do.	Mercer,	33	1	" "	2 "	70
8	Do.	do.	32		" "	2 "	
90	Do.	do.	24	1	" "	1 "	
91	Do.	do.	39	4	" day,	1½ to 2 tons,	
92	Do.	do.	51	3	" ton,	2¼ tons,	
93	Do.	do.	51	11	" "	2½ "	
94	Do.	Somerset,	32		" month,		40 00
95	Do.	do.	39	3	" ton,	4 tons,	
96	Do.	do.	34	3	" "	4 "	
97	Do.	do.	38		" car,	$1 50	
98	Do.	do.	29		" ton,	3 cars,	
99	Do.	do.	24	1½	" car,	2 "	
100	Do.	do.	35		" ton,	4 tons,	
101	Do.	Tioga,	37	8	" "	3 "	
102	Do.	do.	47	10	" "	5 to 6 tons,	
103	Do.	do.	30	9	" "	5 to 6 "	
104	Do.	do.	45	13	" "	3½ tons,	
105	Do.	do.	38	3	" "	6 "	
106	Do.	do.	45	2	" "	3 "	
107	Do.	do.	40	7	" "	3½ "	
108	Do.	Washington,	26	9	" "	2¼ "	
109	Do.	do.	45	4½	" "	$2 00	
110	Do.	do.	50	2	" "	1 25	
111	Check-weighman.	do.	36	1	" day,	2 00	
112	Miner,	Westmoreland,	25	14	" bushel,	80 bushels,	
113	Do.	do.	37	1½	" "	100 "	
114	Do.	do.	50	5	" "	65 bushels,	
115	Do.	do.	25	9	" ton,	3 to 4 tons,	
116	Do.	do.	29	5	" "	3 wagons,	50
117	Do.	do.	43	14	" "	4 tons,	
118	Do.	do.	31	8	" "	4 to 5 tons,	
119	Do.	do.		4	" "	$1 50	
120	Do.	do.	33	6	" bushel,	100 to 125 bush	
121	Do.	do.			" "	$1 00	
122	Do.	do.	30	8	" "	75 to 100 bush	
123	Laborer,	do.	47		" car,	1½ cars,	80
124	Miner,	Fayette,	43	1½	" bushel,	100 bushels,	
125	Do.	do.	31		" "	60 "	

EARNINGS.—CONTINUED.

Present weekly wages.	Lost time in 1879.	Earnings for 1879.	Weekly wages in 1872.	Family.		How often are wages paid.	Earnings retained by employer on pay-day.	Weeks in operation during the year.	Hours worked per day.	Value of working tools.
				Adults.	Children.					
$9 00	2 weeks,	$450 00	$15 00	2	4	Monthly,		50	11	
7 00				1		"				$5 00
11 25	26 weeks,	292 50	15 00	2	3	"	1 week,	26	15	8 00
9 50	26 "	247 00		2	7	"	1 "	26	12 to 15	12 00
6 00	13 "	234 00		2	5	"	4 "	39	10	7 00
8 00	3 "	392 00		2	3	"	3 "	49	9	17 50
5 94	17 "	208 00		2	4	"		35	10	7 50
		52 00		2	6	"			10	10 00
7 00	21 weeks,	217 00		2	1	"		31	10	10 00
7 00		364 00		2	5	"		52	9	
7 59	3 weeks,	367 50		2	3	"	Monthly,	49	12	5 00
9 00	26 "	234 00		2	3	"	3 weeks,	26	11	7 00
9 00	17 "	315 00	16 50	2	3	"	3 "	35	9	25 00
				2	6	"			10	10 00
12 00		624 00		2	3	"		52	10	
7 50	8 weeks,	330 00	18 00	2	3	"	1 month,	44	11	14 50
10 00	2 "	500 00	20 00	2	7	"	2 weeks,	50	10 to 12	12 00
7 50	4 "	360 00	15 00	2	2	"	3 "	48	11	9 00
7 00			12 00	2		Semi-monthly,	2 "		10	10 00
8 50		442 00		2	1	Monthly,		52	9	7 50
7 50				1		"	3 weeks,		10	10 50
9 45	5 weeks,	454 15	15 00	2	8	"	2 "	47	10	21 00
10 50	17 "	367 50		2	7	"	2 "	35	10	8 00
	13 "	360 00		2	5	"	2 "	39	11	
			12 00	2	2	"			12	
7 00	4 weeks,	336 00	18 00	2	2	"	2 "	48	16	
				2	3	"			9 to 10	10 00
7 50	10 weeks,	315 00	14 00	2	1	"	1 month,	42	10	6 00
				1		"			12	7 50
8 50	26 weeks,	221 00	15 00	2	1	"	2 weeks,	26	11	
9 26	25 "	250 00	12 00	2	4	"	1 "	27	10	6 00
7 00	17 "	245 00		2	2	"	2 "	35	10	10 00
7 00	17 "	245 00		2	1	"		35	10	10 00
8 00	5 "	376 00		2	7	"		47	10	12 00
9 32	4 "	447 36	18 00	2	3	"	2 weeks,	48	10 to 12	12 00
				2	3	"	2 "		11	12 00
11 55		600 60	19 80	2	7	"		52	10½	14 00
7 00		364 00	12 00	2	1	"		52	10	10 00
9 00	7 weeks,	405 00		2	6	"	2 weeks,	45	11	8 00
7 50	20 "	240 00	10 00	2	4	"	2 "	32	10 to 12	13 00
12 00	40 "	144 00	15 00	2	4	"	3 "	12	12 to 14	
	35 "			2	2	"	2 "	17	12	10 00
				2	4	"			12	7 00
7 80	6 weeks,	358 80		2	2	"	3 weeks,	46	12	13 00
7 00		364 00		2	1	"	3 "	52	10	7 00
				2	4	"			12 to 14	6 00
9 00	12 weeks,	360 00		2	5	"	2 weeks,	40	9 to 12	5 50
7 94	6 "	365 24	14 00	2		"		46	10	8 00
9 00	12 "	360 00		2	3	"	1 week,	40	13	4 00
8 50	16 "	306 00	12 00	2	5			36	9	10 00
6 00	4 "	288 00		2	6	Monthly,	2 weeks,	48	12	10 00
8 16	4 "	391 68		2	5	"		48	8 to 10	5 00
				2	6	"			10	
	35 weeks,			2	6	"		17	10 to 12	14 00
12 00	30 "	264 00	20 00	2	2	"		22	12 to 14	10 00

EMPLOYEES' EXPENDITURES.

Number of Returns.	FAMILY.		EARNINGS.				EXPENDITURES.								EXCESS OF—		Have your earnings for five years covered expenses?
	Adults.	Children.	Earnings of adults.	Earnings of those under sixteen years of age.	Wages for year of adults other than yourself.	Total earnings of family for the year.	Rent.	Fuel.	Groceries.	Clothing and dry goods.	Education.	Other expenses.	Recreation.	Total.	Expenses over earnings.	Earnings over expenses.	
1	2	6	$500 00			$500 00											
2	2	2	432 00			432 00											Yes.
3	2	4															
4	2	1	399 50			799 50	$18 00	$19 00	$376 00	$110 00	$4 00	$10 00	$37 00	$797 00		$2 50	Yes.
5	2	7	220 00			220 00											Yes.
6	2	7	312 00			312 00											No.
7	2	1	450 00	51 00		504 03			254 00	75 00	6 00	132 00	97 00	504 00			Yes.
8	1	2	179 00	250 00	$275 35	704 35	50 00	10 00	400 00	100 00	7 00	173 00		740 00	$35 65		No.
9	2	8	352 00			352 00	72 00	34 00	380 00	30 00	3 00	10 00	5 00	514 00	162 00		No.
10	2	3	360 00		360 00	720 00	72 00	28 20	540 00	50 00	4 45			694 65		25 35	No.
11	2	3	110 00			110 00	60 00	10 00	180 00	30 00	5 00	6 00		291 00	181 00		No.
12	2	3					50 00	6 00	200 00	60 00		50 00	5 00	371 00			No.
13	2	1	218 40			218 40	84 00	10 00	210 00	85 00	2 00			419 00	200 60		No.
14	2	2	310 50			310 50	60 00	17 50	100 00	40 00		100 00		319 50	9 00		No.
15	2	1	252 00		150 00	402 00	65 00	17 00	300 00	75 00		25 00		482 00	80 00		No.
16	2	2	625 00			625 00	51 00	25 00	180 00	75 00		154 00	50 00	535 00		90 00	Yes.
17	2	2	300 00			300 00	48 00		200 00		20 00			268 00		32 00	No.
18	2	2	468 00		1,032 00	1,500 00											Yes.
19	2	6	510 00			510 00		12 00	252 00	78 00	10 00	40 00	3 00	393 00		117 00	Yes.
20	2	7	320 00		130 00	450 00											No.
21	2	1	357 00			357 00											
22	1	3	422 40			422 40	20 00	18 00						265 00		92 00	No.
23	2	3	348 92			348 92	84 00	20 00	180 00	100 00	6 00	11 20		401 20	52 28		No.
24	2	4						35 00	216 00	100 00				351 00			No.
25	2	2	240 00			240 00	60 00	14 00	96 00	40 00	6 00	15 00	10 00	241 00	1 00		No.
26	2	5	225 00	150 03		375 00		30 00	100 00	150 00			20 00	300 00		75 00	Yes.
27	2	3															
28																	
29																	

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EMPLOYEES' EXPENDITURES---CONTINUED.

NUMBER OF RETURNS.	FAMILY.		EARNINGS.				EXPENDITURES.								EXCESS OF—		Have your earnings for five years covered expenses?
	Adults.	Children.	Earnings of adults.	Earnings of those under sixteen years of age.	Wages for year of adults other than yourself.	Total earnings of family for the year.	Rent.	Fuel.	Groceries.	Clothing and dry goods.	Education.	Other expenses.	Recreation.	Total.	Expenses over earnings.	Earnings over expenses.	
83,	2	3	$315 00	. . . . .	. . . . .	$315 00	$36 00	$15 00	$291 00	$96 00	$10 00	$12 00	. . . . .	$460 00	$145 00	. . . . .	No.
84,	2	6	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	No.
85,	2	3	624 00	. . . . .	. . . . .	624 00	36 00	13 20	200 00	120 00	1 00	25 00	$10 00	405 20	. . . . .	218 80	No.
86,	2	3	330 00	. . . . .	. . . . .	330 00	42 00	14 85	239 25	165 75	1 00	48 00	5 00	515 85	185 85	. . . . .	No.
87,	2	7	500 00	. . . . .	$144 00	644 00	42 00	20 00	. . . . .	. . . . .	1 00	. . . . .	. . . . .	694 00	50 00	. . . . .	No.
88,	2	2	360 00	. . . . .	. . . . .	360 00	36 00	20 00	240 00	60 00	75	1 25	. . . . .	358 00	. . . . .	2 00	No.
89,	2	. . .	. . . . .	. . . . .	. . . . .	. . . . .	42 00	10 00	120 00	50 00	5 00	20 00	. . . . .	247 00	. . . . .	. . . . .	Yes.
90,	2	1	442 00	. . . . .	. . . . .	442 00	24 00	10 00	120 00	100 00	10 00	20 00	. . . . .	284 00	. . . . .	158 00	Yes.
91,	1	. . .	. . . . .	. . . . .	. . . . .	. . . . .	36 00	13 50	. . . . .	. . . . .	4 50	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	Yes.
92,	2	8	454 15	. . . . .	309 85	764 00	36 00	30 50	453 50	240 00	4 00	. . . . .	. . . . .	764 00	. . . . .	. . . . .	No.
93,	2	7	367 50	40 00	182 00	589 50	30 00	20 00	227 00	150 00	3 00	. . . . .	. . . . .	430 00	. . . . .	159 50	No.
94,	2	5	360 00	. . . . .	. . . . .	360 00	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	Yes.
95,	2	2	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	Yes.
96,	2	2	336 00	. . . . .	. . . . .	336 00	96 00	18 00	96 00	40 00	5 00	25 00	. . . . .	280 00	. . . . .	56 00	No.
97,	2	3	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	Yes.
98,	2	1	315 00	. . . . .	. . . . .	315 00	48 00	6 00	60 48	64 00	. . . . .	1 52	. . . . .	180 00	. . . . .	135 00	No.
99,	1	. . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	No.
100,	2	1	221 00	. . . . .	. . . . .	221 00	48 00	10 00	144 00	30 00	. . . . .	24 00	5 00	261 00	40 00	. . . . .	No.
101,	2	4	250 00	. . . . .	125 00	375 00	60 00	12 00	280 00	25 00	2 00	10 00	. . . . .	389 00	14 00	. . . . .	No.
102,	2	2	245 00	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	Yes.
103,	2	1	245 00	. . . . .	. . . . .	245 00	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	Yes.
104,	2	7	376 00	208 00	376 00	960 00	72 00	25 20	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	850 00	. . . . .	110 00	Yes.
105,	2	3	447 36	64 35	. . . . .	511 71	30 00	24 00	278 24	100 00	8 00	55 11	10 00	505 35	. . . . .	6 36	Yes.
106,	2	3	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	No.
107,	2	7	600 60	148 80	600 60	1,350 00	72 00	28 00	420 00	132 22	13 25	85 00	36 00	786 47	. . . . .	563 53	Yes.
108,	2	1	364 00	. . . . .	. . . . .	364 00	60 00	2 75	146 67	60 00	. . . . .	33 00	10 00	312 42	. . . . .	51 58	Yes.
109,	2	6	405 00	75 00	. . . . .	480 00	60 00	14 00	34 00	. . . . .	3 00	6 20	. . . . .	491 20	11 20	. . . . .	No.
110,	2	4	240 00	. . . . .	231 63	471 63	60 00	7 00	300 00	90 00	4 00	1 02	. . . . .	462 02	. . . . .	9 61	Yes.
111,	2	4	144 00	. . . . .	. . . . .	144 00	. . . . .	. . . . .	100 00	75 00	35 00	100 00	. . . . .	310 00	166 00	. . . . .	No.
112,	2	2	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	No.
113,	2	4	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	No.

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EMPLOYEES'

Number of returns.	OCCUPATION.	COUNTY.	Age.	Years in present employ.	Day or piece work.	Average day's work - lbs.	Prices paid per—
1	Blast furnaceman,	Berks,	37	15	Day,		
2	Do. do.	do.	32	10	"		
3	Do. do.	do.	29	7	"		
4	Do. do.	Mercer,	40	1½	"		
5	Do. do.	do.	37		"		
6	Do. do. (keeper,)	Lehigh,		13	"		
7	Do. do. do.	Berks,	32	13	"		
8	Puddler,	Allegheny,	38	7	Ton,	2,375	$5 50
9	Do.	do.	46	3	"	2,375	5 50
10	Do.	do.	43	12	"	2,300	5 50
11	Do.	do.		*8	"	2,240	5 50
12	Do.	do.	37	*5	"	2,375	5 50
13	Do.	do.	38	15	"	2,375	5 50
14	Do.	do.	49	13	"	2,300	5 50
15	Do.	do.	56	3	"	2,375	5 50
16	Do.	do.		10	"	2,240	5 50
17	Do.	do.	33	3⅓	"	2,375	5 50
18	Do.	Armstrong,	42	2	"	2,350	
19	Do.	Berks,	36	*7	"	2,240	4 00
20	Do.	do.	49	2	"	2,375	4 00
21	Do.	do.	35	1	"		4 00
22	Do.	Cambria,	47	20	"	2,240	4 00
23	Do.	Cumberland,	42	12	"	2,240	4 50
24	Do.	do.	35	14	"	2,450	4 50
25	Do.	Dauphin,	37	11	"	2,500	4 50
26	Do.	Lackawanna,	38	16	"	2,700	3 00
27	Do.	Lawrence,	37	2	"	2,300	5 50
28	Do.	do.	54	4	"	2,400	5 50
29	Do.	do.		3	"	2,400	5 50
30	Do.	do.	40	4	"	2,400	5 50
31	Do.	Lehigh,	35	7	"		3 50
32	Do.	do.	30	*11	"	3,000	4 25
33	Do.	Mercer,	32	2	"	2,400	5 50
34	Do.	do.	29	*11	"	2,375	5 50
35	Do.	Montgomery,	29	4	"	2,500	4 90
36	Do.	Northumberland,	45	7	"	2,800	3 40
37	Heater, (steel,)	Allegheny,	29	11	Day,		
38	Do.	do.	28	*6	Ton,	17,920	72½
39	Do.	do.	54	*18	"	16,800	72½
40	Do.	Armstrong,	47	7	"	17,000	72½
41	Do.	Cumberland,	43	14	"	14,560	50
42	Do.	Delaware,		4	"	17,920	48
43	Do.	Lawrence,	51		"	15,680	67½
44	Do.	Lehigh,	33	14	"		85
45	Do.	Northampton,	39	4	"	11,200	56
46	Do.	Perry,	53	34	"	11,200	71
47	Helper,	Berks,	28	*9	Day,		
48	Do.	Lehigh,	45	25	"		
49	Roller, (bar,)	Allegheny,	38	9	Ton,	35,840	72½
50	Do.	Cumberland,	31	12	"	42,560	
51	Do.	do.	35	3	"	35,840	32
52	Do.	Lawrence,	50	4	"		68
53	Do.	Lebanon,	27	12	"		40
54	Do.	Northampton,	33	17	Day,		
55	Do. (bar,)	Perry,	43	5	Ton,	20,160	40
56	Do. do.	Philadelphia,	34	*10	"	22,400	
57	Do. (guide,)	do.	37	9	"		
58	Do. (rail,)	Montour,	46	5	"	190,400	6¾
59	Do. (Russia iron,)	Allegheny,		14	"	4,480	2 52
60	Do. (sheet,)	do.	32	*6	"		90
61	Do. (steel.)	do.	32	10	"	3,750	4 50 to 80 00
62	Roller and roll turner,	Columbia,	38	1½	"	13,440	56
63	Roller, (muck,)	Armstrong,	46	2½	"	26,880	52½
64	Rougher,	Allegheny,	22	5	Day,		
65	Do.	do.	43	6	Heat,	10 heats	27
66	Do.	Cumberland,	56	14	Ton,	47,040	11
67	Catcher at muck rolls,	Mercer,	38	2	Day,		
68	Catcher,	Perry,	24	1½	Ton,	20,160	18
69	Refiner,	Cumberland,		4	"	11,200	85
70	Do. (helper,)	Berks,	47	1¼	"		35

EARNINGS.

Average weekly wages.	Lost time in 1879.	Earnings for 1879.	Weekly wages in 1872.	Family.		How often are wages paid?	Earnings retained by employer on pay day.	Weeks in operation during the year.	Hours worked per day.
				Adults.	Children.				
$7 90	6⅛ weeks,	$359 45	$15 75	3	1	Monthly,	Twenty days,	45⅛	12
7 00	1 "	357 00	12 95	2	1	"	"	51	12
6 90	1 "	351 90	10 50	2	4	"	"	51	12
12 25	2 "	612 50	24 50	3	8	"		50	12
7 50	4 "	360 00		2	4	"		48	10 to 12
12 60	7.2-7 "	563 40	21 30	2	3	"	$12 00 to $15 00,	44.5-7	12
9 15	2.5-7 "	450 90	12 60	2	1	"	Twenty days,	49.2-7	12
17 00	16 "	612 00	28 40	3	1	Two weeks,	One week,	36	11
17 00				2	1	"	"		12
17 00	17 weeks,	595 00		2	1	"	"	35	9 to 11
18 00	35 "	306 00	24 00	2	2	"	"	17	10
17 00			24 00	2	6	"	"		10
17 50	6 weeks,	805 00	16 00	2	2	Monthly,	"	46	9 to 11
17 33⅓	13 "	676 00	28 50	2	4	Weekly,	"	39	9
16 00	5 "	752 00	16 00	2	1	Two weeks,	"	47	9
14 00	9 "	602 00	28 00	2	1	Weekly,	"	43	9
17 00	17 "	595 00	28 00	2	4	Two weeks,	"	35	8 to 10
17 75	17½ "	612 50		2		"	"	34½	9 to 10
12 00	16 "	432 00	20 00	1		Monthly,	Two weeks,	36	10
14 17	13 "	552 82	20 00	2	6	"	$18 00,	39	10 to 11
15 12	2 "	756 00		2	2	Two weeks,	Two weeks,	50	12
12 00	2 "	600 00	18 00	2	5	Monthly,	One month,	50	12
13 00	16 "	468 00		2	2	"	Two weeks,	38	10 to 12
15 00	25 "	405 00	25 00	2	4	Four weeks,	Two-thirds,	27	10
13 00	13 "	507 00	18 00	2	3	Semi-monthly,	Two weeks,	39	9
10 00	44 "	180 00	18 00	2	4	Monthly,		18	12 to 14
18 50	19½ "	601 25	31 00	2		Two weeks,	One week,	32½	10
	14 "	462 33		3		Semi-monthly,	Fifteen days,	38	11
	8⅛ "	500 00		2	4	Two weeks,	One week,		10
18 50	17 "	647 50	35 00	2	6	"	"	35	10
11 00	20 "	352 00	22 00	2	5	Monthly,		32	12
11 00	13 "	429 00	25 00	2	4	Five weeks,	Two weeks,	39	12
17 50	13 "	682 50	32 00	2	5	Semi-monthly,	Three weeks,	39	10 to 12
13 50	8½ "	587 25		2	2	Monthly,	Fifteen days,	43⅛	8 to 9
16 00	5 "	752 00		2		Weekly,	Two weeks,	47	11
13 00	5 "	611 00		2	2			47	12
15 00	3 "	735 00	18 00	2		Monthly,	One week,	49	12
20 00	23 "	580 00		2	3	Semi-monthly,	"	29	12
20 00	28 "	480 00	38 00	2	7	Two weeks,		24	10
23 00	9 "	989 00		4	7	"	One week,	43	10
17 00	26 "	442 00	28 00	2	3	Monthly,	Two weeks,	26	10
19 00			27 50	2	3	Weekly,	One week,		12
23 00	33 weeks,	437 00	35 00	2	6	Two weeks,	"	19	10
17 61		915 84	25 00	2	6	Monthly,		52	10 to 12
11 52		599 24		2	5	"		52	11
13 75		715 00	22 28	2	4	"	Two weeks,	52	8 to 11
13 25	20 weeks,	424 00		2	3	Weekly,	One day,	32	12
8 75	17 "	306 25		2	3	Monthly,	Ten days,	35	12
30 00	2 "	1,500 00		2	5	Two weeks,	One week,	50	10
18 42	17 "	644 70	22 00	2	3	Four weeks,	Two weeks,	35	9⅛
21 79	13 "	849 81		2		"	"	39	10
28 57	17 "	1,000 00	30 00	2	7	Semi-monthly,	One week,	35	10
12 50	13 "	487 50	25 00	1		Monthly,	Two weeks,	39	
9 00	17 "	315 00	15 00	1		"		35	11
21 50	19 "	709 50	27 00	2	5	"		33	11
25 00	22 "	750 00		2	3	Two weeks,	Two weeks,	30	10
				2	3	Weekly,	One week,	52	
27 00	26 weeks,	702 00		5	4	Monthly,		26	11
25 00	8 "	1,100 00	35 00	3	3	Weekly,	One week,	44	12
20 00	26 "	520 00		2	5	Two weeks,	"	26	10
						"	"		10
33 94	13 weeks,	1,323 66		2	2	Monthly,	One month,	39	
32 24	6 "	1,483 04		2	6	Two weeks,	Nine days,	46	10
10 00				1		Weekly,	One week,		9
25 00				4	2	Semi-monthly,			10 to 12
14 00	9 weeks,	602 00		2	2	Monthly,	Two weeks,	43	10 to 12
11 00				2		"	15 to 20 days,		9 to 10
8 00	2 weeks,	400 00		2		"	Three weeks,	50	10 to 11
16 97	6 "	780 62		2	2	"		46	12
9 00		275 00		3	2	"			12

EMPLOYEES'

Number of return.	OCCUPATIONS.	COUNTY.	Age.	years in present employ.	Day or piece work.	Average days work—lbs.	Prices paid per—
71	Ronghers,	Dauphin,	30	5	Ton,	311,600	§$3 28
72	Do.	Perry,	31	5	"	20,160	30
73	Forgeman,	Berks,	35	2	"		4 65
74	Do.	Columbia,	55	7	"	1,800	4 00
75	Do.	Cumberland,	23	*9	"	1,120	4 75
76	Hammerman,	Allegheny,	42	*6	"	1,500	6 50
77	Do. (steel,)	do.	55	7	"	15,680	6 00
78	Hammer driver,	Dauphin,	38	9	"	365,120	§1 82
79	Roll turner,	Allegheny,	37	9	Piece,		
80	Finisher in rolling-mill,	Berks,	50	7	Ton,	6,100	25c. to 1 00
81	Roll hand,	Cambria,	33		"	179,200	§2 61
82	Do.	Dauphin,	34	9	"	291,200	§2 34
83	Do.	Montour,	42	5	"	94,080	16
84	Shearer,	Armstrong,		3	"	22,400	84
85	Straightener,	Perry,		8	"	22,400	16
86	Steel melter,	Allegheny,	43	15	"	7,110	5 50
87	Do.	do.	41	4½	"		5 50
88	Do.	do.	38	17	"	22,400	5 50
89	Converter,	do.	58	*5	Day,		2 75
90	Helper at steel mill,	Dauphin,	42	4½	Heat,		9
91	Laborer,	Schuylkill,	26	8	Day,		
92	Molder,	Centre,	48	6	"		
93	Do.	Clinton,	30	1	Hour,		
94	Do.	Cumberland,	53	43	Day,		
95	Do.	Dauphin,	31	3	"		
96	Do.	Franklin,	23	3	Hour,		
97	Do.	Indiana,	34	1½	Month,		
98	Do.	Lackawanna,	44	23½	Day,		
99	Do.	do.	33	11	"		
100	Do.	Lancaster,	44	3	Hour,		
101	Do.	Lehigh,	29	13	Day,		
102	Do.	Montgomery,	35	3¼	"		
103	Do.	do.	39	4	Piece,		
104	Do.	Northampton,	44	15	Day,		
105	Do.	Perry,	47	24	Ton,	1,120	9 00
106	Do.	Schuylkill,	33	12	Day,		
107	Do.	Snyder,	48	*2	"		1 60
108	Do.	Susquehanna,	47	25	"	400	
109	Do.	Union,		12	"		
110	Do.	York,		13	"		
111	Nailer,	Cumberland,	27	10	Keg,	14 kegs, 10 d, 10 kegs, 8 d.	22
112	Do.	Lawrence,	62	2	Keg,†	15 kegs,	21
113	Do.	do.	39	4	"		
114	Do.	Northumberland,	26	4	Keg,	6 to 50 kegs,	12c. to 2 00
115	Nail cutter,	Allegheny,	28	2	"		26c. to 59c.
116	Tack cutter,	do.	39	19	Piece,	300	‖ 1 00
117	Spike maker,	Lehigh,		9	Ton,	25 kegs, (2,500,)	1 35
118	Nail packer,	Northumberland,	46	10	Piece,	170 kegs,	‖ 1⅝c.
119	Pipe threader,	Allegheny,	34	3	Day,		
120	Wire drawer,	Northampton,		30	Piece,		

*Months.

† One hundred pounds.

‡ Price paid per ton. Helpers receive one third and five per cent. of this amount. This is for Allegheny county alone.

§ Price paid per hundred ton.

‖ Price paid per hundred pounds.

EARNINGS—CONTINUED.

Average weekly wages.	Lost time in 1879.	Earnings for 1879.	Weekly wages in 1872.	Family.		How often are wages paid.	Earning retained by employer on pay day.	Weeks in operation during the year.	Hours worked per day.
				Adults.	Children.				
$27 52	. . . . .	$1,055 77	$20 00	3	. . .	Monthly, ...	Three weeks, ...	. . . .	12
13 17	. . . . .	. . . .	. . . . .	4	1	"	$25 00 to $36 00, ...	. . . .	11
13 00	4 weeks,	624 00	. . . . .	2	2	"	. . . . .	48	8
19 28	17 "	674 80	. . . . .	4	1	"	All, ...	35	12 to 14
13 00	. . . . .	. . . .	. . . . .	1	. . .	"	. . . . .	. . . .	13 to 15
15 00	17 weeks,	575 00	. . . . .	2	. .	Two weeks, ...	Three days, . .	35	9
20 00	2 "	1,000 00	20 00	2	4	Weekly, ...	One week, . . .	50	10
12 00	9 "	516 00	. . . . .	2	1	Monthly, ...	Two weeks, . .	43	12
48 00	. . . . .	2,496 00	. . . .	2	4	Semi-monthly, . .	One week, . . .	52	8
15 00	12 weeks,	600 00	. . . . .	2	4	Monthly, ...	Two weeks, . .	40	10
10 00	2 "	500 00	22 00	2	4	"	One month, . .	50	
18 00	7 "	810 00	22 00	2	5	"	Three weeks, .	45	12
40 00	6 "	1,840 00	. . . .	2	4	Weekly, ...	$55 00, ...	46	10 to 14
18 90	9 "	812 70	. . . .	2	4	Two weeks, . .	One week, . . .	43	10
10 00	. . . .	520 00	. . . . .	1	. . .	Monthly, ...	. . . . .	52	12
38 46	26 weeks,	1,000 00	. .	2	4	Two weeks, ...	One week, . . .	26	13 to 15
22 50	3 "	1,102 50	20 00	2	3	"	" . . .	49	9
. . .	. . . . .	. . . . .	. . .	2	5	"	" . . .	. .	12 to 14
16 50	30 weeks,	363 00	30 00	2	4	"	" . . .	22	10
15 00	18½ "	502 50	. . . . .	2	4	Monthly, ...	Three weeks, .	33⅓	12
7 62	. . . . .	396 24	. . . .	2	1	"	. . . . .	52	10
12 50	12 weeks,	500 00	15 00	2	4	. . . . .	. . . . .	40	10
10 80	. . . . .	. . . . .	23 40	1	.	Monthly, ...	Two weeks, . .	. . .	10
15 00	5 days, .	765 00	18 00	2	4	"	$8 00, ...	51	10
12 00	. . . . .	. . . . .	. . . . .	2	5	"	Twenty days, .	. . . .	10
10 50	. . . . .	. . . . .	. . . .	2	. . .	Weekly, ...	None, ...	. . . .	10
6 96	. . . . .	361 92	. . . .	2	. .	. . . . .	. . . . .	52	11
10 20	11 weeks,	418 20	12 00	2	4	Monthly, ...	. . . . .	41	10
10 00	. . . . .	. . . . .	. . . . .	2	1	"	Two weeks, . .	. . . .	10
8 00	6 weeks,	368 00	10 00	2	3	Weekly in part, . .	$3 00, ...	46	10
12 00	1 "	612 00	24 00	1	. . .	Weekly, ...	. . . . .	51	10
7 50	5 "	352 50	14 00	2	3	Monthly, ...	10 to 20 days, . .	47	10
12 00	17 "	420 00	20 00	2	2	Semi-monthly, . .	Three days, . .	35	11
12 00	2 "	600 00	. . . . .	2	. .	Monthly, ...	One week, . . .	50	9
20 00	9 "	860 00	16 00	2	7	"	$40 00 to $50 00, .	43	11
10 60	1 "	510 00	16 00	2	6	Semi-monthly, . .	Three days, . .	51	10
9 60	30 "	211 20	15 00	2	5	Monthly, ...	$20 00, ...	22	10
12 90	5 "	606 30	17 25	2	2	No regular pay day	. . . . .	47	10
9 00	26 "	234 00	13 50	2	5	. . . . .	. . . . .	26	10
13 00	10 "	546 00	. . . . .	2	4	Weekly, ...	. . . . .	42	10
13 20	26 "	343 20	. . . . .	1	. . .	Monthly, ...	Two weeks, . .	26	11
18 90	26 "	491 40	. . . . .	2	3	Semi-monthly, . .	" . .	26	11
20 00	7 "	900 00	. . . . .	2	. . .	" . .	Ten days, . . .	45	11
25 00	4 "	1,200 00	. . . . .	2	1	Monthly, ...	. . . . .	48	10
12 00	27 "	300 00	. . . . .	2	1	Two weeks, ...	Four days, . . .	25	10
32 70	26 "	850 00	. . . . .	2	4	Semi-monthly, . .	. . . . .	26	10
9 00	4 "	432 00	. . . . .	2	3	Two weeks, ...	. . . . .	48	10
8 40	. . . . .	437 00	. . . . .	2	4	. . . . .	. . . . .	52	11
9 00	2 weeks,	459 00	15 00	2	3	Semi-monthly, .	Three days, . .	50	10
15 00	. . . . .	780 00	20 00	2	3	Monthly, ...	. . . . .	52	11

EMPLOYEES' EXPENDITURES.

Number of Returns.	Family.		Earnings.			Expenditures.										Excess of—		Have your earnings for five years covered expenses?
	Adults.	Children.	Earnings of adults.	Earnings of those under sixteen years of age.	Wages for year of adults other than yourself.	Total earnings of family for the year.	Rent.	Fuel.	Groceries.	Clothing and dry goods.	Education.	Other expenses.	Recreation.	Total.		Expenses over earnings.	Earnings over expenses.	
1	3	1	$359 45			$359 45	$48 00	$20 00	$180 00	$50 00	$5 00	$25 00	$10 00	$338 00			$21 45	Yes.
2	2	1	357 00			357 00	48 00	20 00	180 00	60 00	5 00	15 00	10 00	338 00			19 00	Yes.
3	2	4	351 90			351 90	48 00	15 00	170 00	40 00	5 00	25 00	15 00	318 00			33 90	Yes.
4	3	3	612 50			612 50	30 00	24 00	240 00	45 00	10 00	20 00	7 00	384 00			228 50	Yes.
5	2	4	360 00			360 00	48 00	25 00	180 00	50 00	6 00	30 00	15 00	354 00			6 00	Yes.
6	2	3	563 40			563 40	48 00	25 00	225 00	75 00	10 00	50 00	7 00	420 00			143 40	Yes.
7	2	1	450 90			450 90	40 00	20 00	177 50	66 00	5 00	211 40	4 00	522 90			72 00	Yes.
8	3	1	612 00			612 00	46 00	13 00	200 00	45 00	5 00	20 00	7 00	384 00			228 00	Yes.
9	2	1					48 00	26 00	220 00	45 00	10 00	20 00	7 00	384 00				No.
10	2	1	595 00			595 00	48 00	26 00	328 66	150 00	22 00	52 00	10 00	540 66			264 34	Yes.
11	2	2	306 00			306 00	78 00	14 00		250 00	2 00	52 00		626 00			50 00	No.
12	2	6					72 00	26 00	75 00	100 00		50 00	10 00	466 00			286 00	Yes.
13	2	2	805 00			805 00		40 00	250 00	275 00	15 00	125 00	30 00	695 00			110 00	No.
14	2	4	676 00			676 00	312 00				10 00	20 00		550 00			157 50	Yes.
15	2	1	752 00			752 00	216 00	25 00	75 00	100 00	22 00	52 00	10 00	626 00			126 00	Yes.
16	2	1	602 00			602 00			250 00	275 00	15 00	125 00	30 00	695 00			110 00	No.
17	2	4	595 00	$100 00		695 00	15 00				10 00	20 00		550 00			157 50	Yes.
18	2	2	707 50	95 00		707 50	120 00	20 00	200 00	160 00	30 00	20 00		550 00			157 50	Yes.
19	1	1	432 00			432 00	42 00					42 00		42 00			390 00	Yes.
20	2	6	552 82			552 82	5 00	20 00	240 00			72 00		337 00			215 82	No.
21	2	2	756 00			756 00	90 00	20 00	144 00	150 00	15 00	30 00		449 00			307 00	
22	2	5	600 00			600 00		15 00	300 00	100 00	20 00	160 00	5 00	600 00				No.
23	2	2	468 00			468 00	72 00	24 00	125 00	60 00	10 00	20 00	5 00	316 00			152 00	Yes.
24	2	4	405 00			405 00	60 00	24 00	240 00	20 00	25 00	25 00		394 00			11 00	Yes.
25	2	3	507 00			507 00	108 00	30 00	225 00	100 00	5 00	25 00	7 00	500 00			7 00	No.
26	2	4	180 00	320 00		500 00	72 00	22 50	276 00	55 00		12 00		437 50			63 50	No.
27	2		601 25			601 25		24 00	250 00	100 00	10 00	225 50	25 00	634 50		33 25		No.
28	3		462 33		$136 00	598 33								400 00			198 33	Yes.
29	2	4	500 00		200 00	700 00	96 00							96 00			604 00	Yes.

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EMPLOYEES' EXPENDITURES.—CONTINUED.

NUMBER OF RETURN.	FAMILY.		EARNINGS.				EXPENDITURES.								EXCESS OF—		Have your earnings for five years covered expenses.
	Adults.	Children.	Earnings of adults.	Earnings of those under sixteen years of age.	Wages for year of adults, other than yourself.	Total earnings of family for the year.	Rent.	Fuel.	Groceries.	Clothing and dry goods.	Education.	Other expenses.	Recreation.	Total.	Expenses over earnings.	Earnings over expenses.	
83,	2	4	$1,840 00	. . . . .	. . . . .	$1,840 00	. . . .	$30 00	$100 00	$250 00	$50 00	$300 00	$10 00	$740 00	. . . . .	$1,100 00	No.
84,	2	4	812 70	. . . . .	. . . . .	812 70	$84 00	20 00	300 00	90 00	40 00	26 00	40 00	600 00	. . . . .	212 70	Yes.
85,	1	. . .	520 00	. . . . .	. . . . .	520 00	. . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	Yes.
86,	2	4	1,000 00	. . . . .	. . . . .	1,000 00	. . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	1,000 00			
87,	2	3	1,102 50	. . . . .	. . . . .	1,102 50	200 00	50 00	150 00	150 00	. . . . .	150 00	10 00	710 00	. . . . .	392 50	Yes.
88,	2	5	. . . . .	. . . . .	. . . . .	. . . . .	. . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	Yes.
89,	2	4	363 00	. . . . .	. . . . .	363 00	216 00	15 00	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	500 00	$137 00	. . . .	Yes.
90,	2	4	502 50	. . . . .	$184 00	686 50	84 00	40 00	300 00	150 00	35 00	35 00	40 00	684 00	. . . .	2 50	Yes.
91,	2	1	396 24	. . . . .	. . . . .	396 24	48 00	. . . .	306 00	45 00	. . . .	50 00	. . . .	449 00	52 76	. . . . .	No.
92,	2	4	500 00	. . . . .	235 00	735 00	. . . . .	40 00	195 00	250 00	20 00	120 00	15 00	640 00	. . . . .	95 00	Yes.
93,	1	. . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	Yes.
94,	2	4	765 00	. . . . .	. . . . .	765 00	. . . . .	33 00	115 00	215 00	100 00	100 00	25 00	588 00	. . . . .	177 00	Yes.
95,	2	5															
96,	2	. . .	. . . . .	. . . . .	. . . . .	. . . . .	80 00	20 00	100 00	60 00	1 00	50 00	25 00	336 00	. . . . .	. . . . .	Yes.
97,	2	. . .	361 92	. . . . .	. . . . .	361 92	18 00	. . . .	120 00	. . . . .	. . . . .	. . . . .	. . . . .	138 00	. . . . .	223 92	Yes.
98,	2	4	418 20	. . . . .	. . . . .	418 20	. . . . .	30 00	250 00	60 00	2 00	60 00	14 00	416 00	. . . . .	2 20	No.
99,	2	1	. . . . .	. . . . .	. . . . .	. . . . .	60 00	24 00	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	No.
100,	2	3	368 00	. . . . .	. . . . .	368 00	. . . .	20 00	. . . . .	. . . . .	12 00	21 00	. . . . .	375 00	7 00	. . . .	No.
101,	1	. . .	612 00	. . . . .	. . . . .	612 00	48 00	12 00	. . . .	150 00	144 00	50 00	. . . . .	404 00	. . . . .	208 00	
102,	2	3	352 50	. . . . .	. . . . .	352 50	60 00	30 00	128 00	75 00	10 00	49 50	. . . . .	352 50	. . . . .	. . . . .	No.
103,	2	2	420 00	. . . . .	. . . . .	420 00	. . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	No.
104,	2	. . .	600 00	. . . . .	. . . . .	600 00	. . . . .	25 00	250 00	100 00	. . . . .	50 00	25 00	450 00	. . . . .	150 00	Yes.
105,	2	7	860 00	. . . . .	. . . . .	860 00	75 00	50 00	250 00	100 00	50 00	50 00	25 00	600 00	. . . . .	260 00	Yes.
106,	2	6	510 00	. . . . .	. . . . .	510 00	60 00	24 00	240 00	35 00	20 00	90 00	. . . . .	469 00	. . . . .	41 00	No.
107,	2	5	211 20	. . . . .	. . . . .	211 20	60 00	30 00	45 00	65 00	10 00	50 00	. . . . .	260 00	48 80	. .	No.
108,	2	2	606 30	. . . . .	. . . . .	606 30	. . . . .	40 00	175 00	100 00	50 00	110 00	10 00	485 00	. . . . .	121 30	Yes.
109,	2	5	234 00	. . . . .	100 00	334 00	. . . .	25 00	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	Yes.
110,	2	4	546 00	. . . . .	. . . . .	546 00	60 00	20 00	. . . . .	. . . . .	4 00	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	Yes.
111,	1	. .	343 20	. . . . .	343 20												
112,	2	3	491 40	. . . . .	. . . . .	491 40	200 00	50 00	240 00	. . . . .	20 00	. . . . .	. . . . .	510 00	18 60	. .	No.
113,	2	. . .	900 00	. . . . .	. . . . .	900 00	120 00	20 00	175 00	150 00	. . . . .	75 00	60 00	600 00	. . . . .	300 00	Yes.

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EMPLOYEES.

Number of return.	OCCUPATION.	COUNTY.	Age—years.	Years in present employ.	Day or piece work.	Average day's work.	Price paid per—
1	Blacksmith,	Berks,	32	2*	Day,	9 hours,	
2	Do.	Bradford,	29		"		
3	Do.	Clearfield,	41	2*	"		
4	Do.	Cambria,	24	2			
5	Do.	Clinton,	56	16			Hour,
6	Do.	Cumberland,	60	21*	Day,		
7	Do.	Dauphin,	52	9	"		
8	Do.	do.		7*	"	10 hours,	
9	Do.	do.	37	5	"		
10	Do.	Huntingdon.	32	2	"		
11	Do.	Lancaster,	36	5	Piece,	Iron 1 buggy,	
12	Do.	Montgomery,	54	26	Day,		
13	Do.	Northumberland,		8	"		
14	Do.	Northampton,	53	24	Piece,		Hour,
15	Do.	Perry,	33	10	Day,	10 hours,	
16	Do.	Warren,	37	9			
17	Do. helper,	Lackawanna,	42	15	Day,	10 hours,	
18	Do.	Blair.	64	15	"	10 "	
19	Brakeman,	Allegheny,	28	2	"	11½ "	
20	Do.	Lackawanna,	27	12	"	11 "	
21	Do.	Philadelphia,	48	2		One trip,	
22	Brass finisher,	Allegheny,	24	2	Day,		
23	Bricklayer,	Erie,	41		Piece,		
24	Do. furnace,	Chester,	50		"		
25	Do.	Perry,	56	15		10 hours,	
26	Do.	Westmoreland,		40	Piece & day,		
27	Butcher,	Philadelphia,	23		Day,		
28	Carpenters, pattern,	Allegheny,	31	13	"	10 hours,	
29	Do.	Bedford,	52	20	Piece,		
30	Do.	Blair,	42	10	Day,	9 hours,	
31	Do.	do.	59				
32	Do. ear builder,	Clinton,	26	7	Day,		
33	Do. do.	do.		24		10 hours,	Hour,
34	Do.	Cumberland,	54	2	Day,		
35	Do. pattern,	Dauphin,	41	5	"	10 hours,	
36	Do. wheelwright,	Cameron,	41	11	"	11 "	
37	Do. wagon maker	Elk,	38	9	"	10 "	
38	Do.	Huntingdon,	41	10	"	10 "	
39	Do.	Lancaster,	29	7	"		
40	Do.	Lawrence,	48	32			Contract
41	Do. wheelwright,	Lycoming,	28	8	Piece.		
42	Do.	Montgomery,	41	15*	Day,	9 hours,	
43	Do.	Montour,	50	15	"		
44	Do. planer,	Northumberland,	31	9	"	10 hours,	Hour,
45	Do. millwright,	Northampton,	50	30	"		Contract
46	Do. pattern,	Philadelphia,		21	"	10 hours,	
47	Do.	Sullivan,	39		"	10 "	
48	Do.	Tioga,	40		Piece & day,		
49	Do.	Warren,	38		Day,	10 hours,	
50	Cabinet-maker,	Cambria,	23		Piece,	10 "	
51	Do.	Erie,	25	6	Day.		
52	Do.	Allegheny,	55	5	Piece,		
53	Do.	Montgomery,		12	Week,		
54	Do.	Northampton,	58		Day,		
55	Chair-maker,	do.	43		"	10 hours,	
56	Do.	Susquehanna,	55	4	Piece,	10 "	
57	Carpenters, millwright,	Warren,	76	30	Day,		
58	Do. ship,	Washington,	56	29	"		
59	Coachsmith,	Westmoreland,		3	"	Plain 1 buggy,	
60	Carriage-maker,	Chester,	30	9	"		
61	Do. trimmer,	Lancaster,	64	4	Piece,		
62	Do. maker,	Crawford,	41		"	12 hours,	
63	Do. ironer,	Tioga,	29	18*	Day,	10 "	
64	Caulker,	Allegheny,	52	7	"	20 seams,	
65	Cooper,	Warren,	56	20	Piece,	2 barrels,	
66	Do.	Westmoreland,		5	"		
67	Engineer,	Armstrong,	40	2½	Day,	10 hours,	
68	Do. locomotive,	Allegheny,	47	6	Trip,	11 "	
69	Do.	do.	27	18	Day,		†
70	Engineer and stave sawyer,	Erie,	34	7	Piece,	4,500 staves,	

EARNINGS.

Average weekly wages.	Lost time in 1879.	Earnings for 1879.	Weekly wages in 1872.	Family. Adults.	Family. Children.	How often are wages paid.	Earnings retained by employer on pay day.	Weeks in operation during the year.	Hours worked per day.	Value of working tools.
$8 10	. . . . .	$421 20	. . . .	2	4	Monthly, ...	One half, . . .	52	10	
18 00	. . . . .	936 00	. . .	3	2	. . . . .	. . . . .	52	10	$100 00
9 90	. . . . .	514 80	$15 90	3	2	Monthly, ...	One month, .	52	10	100 00
3 00	8 weeks,	132 00	. . .	. . .	. . .	Irregular, ...	One half, . . .	44	9	
12 00	2 "	600 00	16 50	4	1	Monthly, ...	$24 00, ...	50	10	
9 75	4 "	468 00	13 00	3	1	"	. . . . .	48	10	
16 00	. . . . .	832 00	27 00	2	5	"	. . . . .	52		
10 50	16 weeks,	378 00	13 20	5	2	"	. . . . .	36	10	200 00
9 00	. . . . .	. . . . .	. . .	2	2	"	. . . . .	. . . .	10	
9 00	16 weeks,	324 00	16 50	2	. . .	On demand, . . .	. . . . .	36	10	
10 00	. . . . .	520 00	15 00	2	1	Weekly, ...	One half, . . .	52	10	
9 87	2 weeks,	493 50	13 73	4	. . .	Monthly, ...	$12 00, ...	50	9	
9 00	2 "	450 00	15 00	2	6	. . . . .	One half, . . .	50	10½	
11 88	3 "	582 12	14 88	5	3	Monthly, ...	. . . . .	49	9	
9 00	1 "	459 00	. . . .	1	. . .	"	$15 00, ...	51	10	
. . .	10 "	. . . . .	. . . .	2	2	. . . . .	. . . . .	42	. . . .	85 00
7 62	1 "	388 62	. . . .	2	3	Monthly, ...	. . . . .	51	10	
16 20	. . . .	842 40	16 20	3	. . .	"	. . . . .	52	10	
9 90	5 "	465 30	. . . .	2	1	"	. . . . .	47		
13 30	4 "	638 40	14 60	3	1	"	$16 50, ...	48	11	
12 72	. . . . .	661 44	. . . .	3	2	"	. . . . .	52	10	
6 24	4 weeks,	299 52	. . . .	2	1	Weekly, ...	. . . . .	48	10	10 00
10 00	16 "	360 00	30 00	2	5	. . . . .	. . . . .	36	10	100 00
16 00	16 "	576 00	. . .	4	3	. . . . .	. . . . .	36	10	5 00
15 00	. . . . .	780 00	25 00	. . .	. . .	Monthly, ...	. . . . .	52	10	
10 50	3 weeks,	514 50	15 00	2	2	Irregular, ...	. . . . .	49	10	
10 00	16 "	360 00	13 00	2	. . .	. . . . .	. . . . .	36	12	3 00
12 00	. . . . .	624 00	17 00	2	3	Monthly, ...	. . . . .	52	10	50 00
. . .	8 weeks,	. . . . .	. . . .	2	2	Not regular, . . .	. . . . .	44	10	50 00
12 60	. . . . .	655 20	14 40	2	4	Monthly, ...	$20 00, ...	52	10	50 09
7 80	. . . .	405 60	. . . .	4	5	. . . . .	. . . . .	52	10	300 00
11 00	8 weeks,	484 00	. . . .	. . .	. . .	Monthly, ...	$22 00, ...	44	10	75 00
14 40	6 "	662 40	18 00	3	1	"	25 00, ...	46	10	40 00
6 50	12 "	260 00	13 00	4	3	Irregular, ...	. . . . .	40	10	40 00
16 50	4 "	792 00	18 00	2	3	Monthly, ...	. . . . .	48	10	200 00
14 50	4 "	696 00	. . . .	2	4	"	. . . . .	48	11	60 00
13 50	3 "	661 50	16 50	2	2	"	$27 00, ...	49	10	100 00
10 00	1 "	510 00	15 00	3	. .	"	20 00, ...	51	10	60 00
8 70	1 "	443 70	9 00	. . .	. . .	Semi-monthly, .	26 00, ...	51	10	40 00
8 00	12 "	320 00	18 00	5	. . .	. . . . .	. . . . .	40	10	50 00
18 00	. . . . .	936 00	20 00	2	2	. . . . .	. . . . .	52	11	100 00
9 00	6 weeks,	414 00	15 00	4	4	Monthly, ...	Two weeks, .	46	9	75 00
10 50	1 "	535 50	15 00	2	1	Irregular, ...	. . . . .	51	10	50 00
5 00	6 "	230 00	16 50	2	2	"	. . . . .	46	10	
15 00	. . . . .	780 00	16 00	4	4	. . . . .	. . . . .	52	10	
12 00	1 week,	612 00	17 00	5	1	Weekly, ...	. . . . .	51	10	75 00
. . .	26 "	. . . . .	. .	4	. . .	. . . . .	. . . . .	26		
6 00	12 "	240 00	12 00	2	4	Irregular, ...	One half, . . .	40		
5 29	12 "	211 60	. . . .	2	2	. . . . .	. . . . .	40	10	80 00
. . .	2 "	. . . . .	. . . .	. . .	. . .	. . . . .	. . . . .	. . . .	. . . .	150 00
7 50	1 "	382 50	. . . .	2	1	Irregular, ...	. . . . .	51	. . . .	20 00
7 50	20 "	240 00	15 00	4	1	Semi-monthly, .	. . . . .	32	. . . .	50 00
8 00	. . . . .	416 00	8 00	2	1	Weekly, ...	. . . . .	52	10	25 00
8 50	2 weeks,	425 00	18 00	2	. . .	"	. . . . .	50	10	50 00
. . .	26 "	. . . . .	. . . .	1	. . .	. . . . .	. . . . .	26	10	
7 50	8 "	330 00	. . . .	3	3	Monthly, ...	. . . . .	44	10	50 00
9 00	12 "	360 00	. . . .	4	. . .	. . . . .	. . . . .	40	10	25 00
9 00	. . . . .	468 00	15 00	2	6	Two weeks, . . .	$3 00, ...	52	. . . .	45 00
8 50	5 weeks,	400 00	9 00	2	. .	Weekly, ...	3 00, ...	47	10	
9 50	. . . . .	494 00	15 00	2	1	. . . . .	. . . . .	52	10	18 00
. . .	9 weeks,	. . . . .	. . . .	7	. . .	Irregular, ...	. . . . .	43	. . . .	5 00
6 00	. . . . .	312 00	12 00	2	1	"	. . . . .	52	12	80 00
10 50	9 weeks,	451 50	15 00	2	. . .	"	One half, . . .	43	10	
9 00	21 "	279 00	18 00	2	4	Monthly, ...	$9 00, ...	31	10	15 00
6 00	2 "	300 00	9 00	4	1	Weekly, ...	. . . . .	50	12	25 00
7 50	10 "	300 00	. . . .	2	3	. . . . .	. . . . .	40	. . . .	3 00
20 00	2 "	1,000 00	. . . .	2	5	Weekly, ...	. . . . .	50	12	50 00
8 50	3 "	416 50	8 00	2	1	Monthly, ...	Eight days, .	49		
44 00	. . . . .	2,288 00	. . . .	5	4	Wk'ly, pr. et. yr'ly	One half, . . .	52	11	
10 50	4 weeks,	504 00	24 00	2	1	Weekly, ...	$39 00, ...	48		

EMPLOYEES'

Number of returns.	OCCUPATION.	COUNTY.	Age—years.	Years in present employ.	Day or piece work.	Average day's work.	Price paid per—
71	Engineer,	Dauphin,	49	13	Hour,	10 hours,	
72	Do.	Lackawanna,	40	12	Day,	12 "	
73	Do.	Lawrenee,	38		"	12 "	
74	Do. locomotive,	Montgomery,	35	15	Trip,	13 "	
75	Do.	Montour,	54	27	Day,	12 "	
76	Do. locomotive,	Perry,		18	Hour,	12 "	
77	Do. do.	Schuylkill,	49	3	Day,	11 "	
78	Do.	Washington,	38	8	Month,	11 "	
79	Do.	Westmoreland,	28	4	Day,	12 "	
80	Fireman,	Dauphin,	23	4	"		
81	Do.	Huntingdon,	29	8	"		
82	Do.	Perry,	29	3	"	12 hours,	
83	Do.	Warren,	25	4	"	10 "	
84	Flagman,	Huntingdon,	28	10	Hour,	10 "	Hour,
85	Do.	Westmoreland,	36	13	Day,	10 "	
86	Gas fitter,	Schuylkill,	31		"		
87	Glass-blower,	Allegheny,		18*	Pieee,		
88	Do.	do.	31		"		
89	Glass finisher,	do.	52	3*	"		
90	Glass-eutter,	do.	47		"		
91	Glass pot maker,	Fayette,	27	18*	Day,	One pot,	
92	Glass-blower,	Monroe,	31	16*	Piecc,		
93	Do.	Philadelphia,	39	10	"		
94	Glass maker,	do.	30		"		
95	Glass-blower,	Wayne,	34	2	Day,	10 hours,	
96	Hatter,	Franklin,	62	11	"	10 "	
97	Laborer,	Allegheny,	45	3	"	10 "	
98	Do.	Beaver,	24	2	Piece,		
99	Do.	Carbon,		5	Day,		
100	Do.	Chester,	42	3	"		
101	Do.	Elk,	31	5	"	10 hours,	
102	Do.	Lackawanna,	32	1*	"		
103	Do.	Lyeoming,	72				
104	Do. lime burner,	do.	32	13		25 bushels,	
105	Do.	Philadelphia,	27	16*		10 hours,	
106	Do.	Schuylkill,	28	3	Day,	9 "	
107	Do.	Westmoreland,	54		"		
108	Machinist,	Allegheny,	37	7*	Hour,		
109	Do.	Bedford,	35	4	Day,	11 hours,	
110	Do.	Berks,	29	11*	"	10 "	
111	Do.	Blair,	33	15	Pieee,		
112	Do.	Bradford,	34	10	Day,	10 hours,	
113	Do.	Clearfield,	43	12	"		
114	Do.	Columbia,	39	10	"	10 hours,	
115	Do.	do.		25	"	11 "	
116	Do.	Cumberland,	46	5	Hour,	10 "	
117	Do.	Montgomery,	49	2½	Week,		
118	Do. iron polisher,	do.	36	10	Day,	1,000 sad irons,	
119	Painter,	Bradford,	45	10	"		
120	Do.	Cumberland,	36	12	"		
121	Do.	Erie,		30	"		
122	Do.	Laekawanna,		12	"		
123	Do.	Lawrence,	33	10			
124	Do.	Lancaster,	51	14	Day,		
125	Do.	Montgomery,	28	2	"	10 hours,	
126	Do.	Northumberland,	27	8	"	10 "	
127	Do.	Union,	25	8	"		
128	Do.	Warren,	42	12	"		
129	Laborer,	Allegheny,	54	4*	"	By the day,	
130	Plasterer,	Erie,	37		Pieee,	40 yards,	
131	Do.	Franklin,	41	20	"	10 hours,	
132	Do.	Lackawanna,	28	10	"	20 yards No. 1,	
133	Do.	Lyeoming,	52	10	Week,	12 hours,	
134	Do.	Philadelphia,	29	4*	Day,		
135	Do.	York,	50	3	"		
136	Printer,	Allegheny,	24	1	Week,	10 hours,	
137	Do.	do.	23	5	Piece,	7,000 ems,	
138	Do.	Erie,	60	20	"		
139	Do.	Perry,	42	20	Week,		
140	Do.	Potter,					

EARNINGS---CONTINUED.

Average weekly wages.	Lost time in 1879.	Earnings for 1879.	Weekly wages in 1872.	Family.		How often are wages paid?	Earnings retained by employer on pay day.	Weeks in operation during the year.	Hours worked per day.	Value of working tools.
				Adults.	Children.					
$10 00	6 weeks,	$460 00	$9 00	2	. .	Monthly, ...	. . . . .	46	12	
16 50	. . . . .	858 00	18 00	3	. . .	"	$27 50, ...	52	12	
12 00	8 weeks,	528 00	16 00	2	1	. . . . .	15 days, . . .	44	14	
18 00	1 week,	918 00	. . . .	2	4	Monthly, ...	20 " . . .	51	13	
9 00	4 weeks,	432 00	19 81	3	. . .	"	$30 00, ...	48		
15 00	4 "	720 00	18 90	4	. . .	"	Half month, .	48	12	
19 00	2 "	950 00	. . . .	4	1	"	. . . . .	50	11	
12 00	. . . . .	624 00	18 00	3	7	"	. . . . .	52	11	$25 00
11 00	. . . . .	572 00	. . . .	2	2	"	Half month, .	52	14	
8 90	3 weeks,	436 10	. . . .	2	1	"	$1 00, ...	49	13	
8 70	. . . .	452 40	9 50	. . .	. . .	"	18 85, ...	52	11	
8 87	2 weeks,	443 50	. . . .	2	1	"	. . . . .	50	14	
4 50	4 "	216 00	. . . .	. . .	. . .	"	. . . . .	48	10	
8 00	. . . .	416 00	9 00	2	2	"	13 days, . . .	52	10½	
6 60	2 weeks,	330 00	9 90	2	1	"	2 weeks, . . .	50	10	
10 50	16 "	378 00	18 00	2	3	. . . . .	. . . . .	36	10	30 00
18 00	8 "	792 00	30 00	2	1	Weekly, ...	. . . . .	44		
25 00	8 "	1,100 00	45 00	2	2	"	One third, . .	44	. . . .	30 00
10 00	12 "	400 00	28 00	4	1	"	. . . . .	40	9	80 00
15 00	6 "	690 00	26 00	2	3	"	. . . . .	46	12	
20 00	. . . .	1,040 00	20 00	2	1	"	$5 00, ...	52	10	5 00
16 50	8 "	726 00	33 00	2	1	Monthly, ...	One fourth, .	44	8	
15 00	5 "	705 00	27 50	2	2	Two weeks, ...	. . . . .	47	8	
21 00	12 "	840 00	21 00	2	4	Weekly, ...	2½ days, ...	40	9	10 00
25 00	. . . . .	1,300 00	. . . .	3	7	"	. . . . .	52	10	50 00
6 00	. . . . .	312 00	8 00	4	2	Monthly, ...	. . . . .	52	10	20 00
7 28	16 weeks,	262 08	11 24	2	3	"	. . . . .	36	10	
12 00	5 "	564 00	. . . .	2	1	"	10 days, ...	47	10	
6 00	7 "	270 00	12 00	2	3	Irregular, ...	. . . . .	45	12	
6 00	. . . . .	312 00	10 00	2	7	Weekly, ...	. . . . .	52	12	
6 65	17 weeks,	232 75	8 10	2	2	Yearly, ...	. . . . .	35		
7 50	16 "	270 00	15 00	2	1	Monthly, ...	. . . . .	36		
4 50	. . . . .	. . . . .	. . . .	2	3	. . . . .	. . . . .	. . . .	. . . .	1 25
. . .	. . . . .	500 00	. . .	2	2					
10 80	. . . . .	561 60	10 20	2	3	Semi-monthly, ...	. . . . .	52	10	
. . .	. . . . .	120 00	. . . .	2	1	Daily, ...	. . . . .	. . .	10	3 00
. . .	26 weeks,	. . . . .	. . . .	4	1	. . . . .	. . . . .	26	10	
14 00	6 "	616 00	. . . .	2	2	Semi-monthly, .	One day, . . .	44	10	75 00
7 00	12 "	280 00	12 00	2	5	Monthly, ...	. . . . .	40	12	
6 00	4 "	276 00	. . . .	2	2	Irregular, ...	. . . . .	46	10	
13 62	. . . . .	708 24	15 00	6	1	Monthly, ...	8 days, ...	52		
12 60	2 weeks,	630 00	15 00	2	1	"	. . . . .	50	10	
16 50	4 "	792 00	20 00	5	4	Irregular, ...	. . . . .	48	10	
12 00	4 "	576 00	15 00	2	1	Monthly, ...	. . . . .	48		
7 50	16 "	270 00	. . . .	4	3	Irregular, ...	. . . . .	36	12	
10 00	4 "	480 00	16 50	4	3	Monthly, ...	. . . . .	48	10	
14 00	2 "	700 00	16 00	2	. . .	Weekly, ...	. . . . .	50	10	
6 00	. . . . .	312 00	12 00	3	2	Monthly, ...	20 days, ...	52	10	
13 44	. . .	698 88	15 44	4	. . .	"	$25 00, ...	52	12	
9 97	12 weeks,	398 80	. . . .	2	2	. . . . .	. . . . .	40	12	
12 00	8 "	528 00	18 00	5	1	. . . . .	. . . . .	44	10	
8 00	8 "	352 00	. . . .	4	2	. . . . .	. . . . .	44	10	50 00
10 00	16 "	360 00	. . . .	2	1	. . . . .	. . . . .	36		
12 00	2 "	600 00	15 00	3	. . .	Monthly, ...	. . . . .	50	11	30 00
9 00	8 "	396 00	15 00	2	. . .	Weekly, ...	. . . . .	44	10	
6 75	26 "	175 50	15 00	2	1	Irregular, ...	. . . . .	26	9	40 00
9 00	5 "	423 00	. . . .	2	. .	Quarterly, . . .	. . . . .	47	11	
8 50	12 "	340 00	24 00	3	6	. . . . .	. . . . .	40	10	50 00
5 00	1 week,	255 00	24 00	3	1	Two weeks, . . .	One week, . .	51	10	
11 00	4 weeks,	528 00	. . . .	1	4	Weekly, ...	. . . . .	48	10	20 00
8 00	12 "	320 00	. . . .	3	6	Irregular, . . .	. . . . .	40	10	
10 00	8 "	440 00	18 00	2	4	"	. . . . .	44	10	200 00
9 00	. . .	468 00	. . . .	3	3	Weekly, ...	3 weeks, . . .	52	12	50 00
6 00	16 weeks,	216 00	18 00	2	1	"	. . . . .	36	10	6 00
5 00	12 "	200 00	12 00	2	1	"	3 days, ...	40	9	10 00
9 00	. . . .	468 00	. . . .	. . .	. . .	"	. . . . .	52	10	
9 00	2 weeks,	450 00	. . . .	. . .	. . .	"	. . . . .	50	10	
7 00	. . . . .	364 00	. . . .	2	. . .	"	. . . . .	52	9	
9 00	. . . .	468 00	9 00	2	. . .	Irregular, ...	. . . . .	52		
6 00	9 weeks,	258 00	8 00	2	1	"	. . . . .	43	10	

EMPLOYEES'

Number of returns.	OCCUPATION.	COUNTY.	Age.	Years in present employ.	Day or piece work.	Average day's work.	Prices paid per—
141	Printer,	Tioga,	61		Week,	6,000 ems,	
142	Quarryman,	Montgomery,	48	2	Day,		
143	Rivet maker,	Allegheny,	40	14	Piece,	600 pounds of $\frac{1}{4}$ inch rivets	
144	Sawyer,	do.	45	6	"		
145	Do.	Cameron,	39	2	Day,		
146	Do.	Lycoming,	50		"		
147	Do.	Monroe,	25	17	"		
148	Do.	Westmoreland,	37	5	Thousand ft.	1,000 feet,	
149	Shoemaker,	Bucks,	26	10	Day,	$1 50,	
150	Do.	Lackawanna,	30			1 00,	
151	Do.	Lycoming,		2	Day,	1 50,	
152	Do.	Montgomery,	44	6	Piece,	1 pair of boots	
153	Do.	Philadelphia,	25		"	$1 50,	
154	Do.	Schuylkill,	28	6	"	30 pairs,	
155	Do.	do.	39	5	"	15 "	
156	Do.	do.	30	4	"	$1 25,	
157	Do.	Somerset,	59	6	Year,	1 50,	
158	Do.	Washington,	52			1 50,	
159	Slater,	Lehigh,	36		Day,		
160	Stone cutter,	Fayette,	28	9	"	$2 25,	
161	Do.	Northamptou,	49	31	Orders,	1 00,	
162	Do.	Northumberland		23	Piece,		
163	Stone mason,	Allegheny,		5	Day,		
164	Do.	Franklin,	33				
165	Do.	Monroe,	45		Day,	$1 50,	
166	Do.	Northumberland	32		"	1 25,	
167	Do.	Westmoreland,	45		"		
168	Tailor,	Bedford,	42				
169	Do.	Blair,	38	25	Piece,		
170	Do.	Cumberland,	48	17	"	$\frac{1}{3}$ of a coat,	
171	Do.	Dauphin,	25	4	"	$1 75,	
172	Do.	Lawrence,	33	3	"	$\frac{1}{3}$ of a coat,	
173	Tanner,	Centre,	26	1	Day,		
174	Do.	Elk,	37	$8\frac{1}{2}$	"		
175	Do.	Fayette,	45	3	"	$1 50,	
176	Do.	Huntingdon,	53	6	"	Clean 30 sides,	
177	Do.	Monroe,	26	2	"		
178	Do.	Perry,	40		"		
179	Do.	Tioga,	46	8	"		
180	Do.	Union,	54	6	"		
181	Do.	Warren,	41	4	Piece,	55 pieces,	
182	Leather finisher,	York,	31				
183	Teamster,	Lackawanna,	31	8	Day,	$2 50,	
184	Do.	do.		7	"	4 cars,	
185	Tinsmith,	Allegheny,	38	14	"		
186	Do.	Northampton,		11			
187	Do.	Chester,	26	$8\frac{1}{2}$	Day,		
188	Track foreman,	Cumberland,	51	20	Month,	$ 1 45,	
189	Do.	Dauphin,	34	14	"	1 65,	
190	Do.	Warren,	25	8	"		
191	Carpet weaver,	Northampton,	60	13	Yard,	10 yards,	
192	Do.	Philadelphia,	33	4	Piece,	20 "	
193	Do.	do.	68	30	"	30 "	
194	Do.	do.	37		"	16 "	
195	Do.	do.	53		"	16 "	
196	Loom fixer,	do.	43	9	Day,		
197	Dyer,	Montgomery,	28	10	"		
198	Beamer,	Delaware,	42	11	Piece,		
199	Engineer,	Tioga,		4	Day,		
200	Heater,	Allegheny,	44	5*	Piece,		‡
201	Lead furnace—helper,	do.	24	4*	Kettle,	One kettle,	
202	Ore miner,	Fayette,	47	9	Ton,	$\frac{3}{4}$ of a ton,	

* Months. † Per cent. product. ‡ Eight to twenty cents per piece.

EARNINGS—CONTINUED.

Average weekly wages.	Lost time in 1879.	Earnings for 1879.	Weekly wages in 1872.	Family. Adults.	Family. Children.	How often are wages paid.	Earnings retained by employer on pay day.	Weeks in operation during the year.	Hours worked per day.	Value of working tools.
$12 00	. . . . .	$624 00	$12 00	2	1	Weekly, ...	. . . . .	52	10	
6 25	6 weeks,	287 50	13 00	3	4	Monthly, ...	. . . . .	46	10	
20 00	16 "	720 00	22 00	2	5	Two weeks, . . .	. . . . .	36	9	
35 00	40 "	420 00	35 00	2	1	Monthly, ...	. . . . .	12	10	$8 00
12 00	13 "	468 00	. . . .	2	2	"	$5 00 to $15 00,	39	12	
6 13	13 "	239 70	. . . .	1	. .	Weekly, ...	One day, . . .	39	10	
10 00	2 "	500 00	15 00	2	5	"	. . . . .	50	12	150 00
. . .	. . . . .	. . .	. . . .	2	4	. . . . .	. . . . .	. . . .	10	
9 00	13 weeks,	351 00	. . . .	2	1	. . . . .	$20 00, ...	39	12	6 00
6 00	. . . .	312 00	. . .	2	1	. . . . .	. . . . .	52	. . . .	200 00
9 00	8 weeks,	396 00	12 00	2	. . .	Weekly, ...	. . . . .	44	10	25 00
8 00	13 "	312 00	. . . .	2	8	"	. . . . .	39	13	15 00
9 00	. . . . .	468 00	. . . .	1	. . .	"	. . . . .	52	10	10 00
6 15	13 weeks,	240 00	9 00	2	2	Semi-monthly, .	Two weeks, .	39	9	10 00
7 59	. . . . .	394 68	. . . .	2	4	" " .	$15 18, ...	52	10	
6 00	. . . . .	. . .	. . .	2	1	" " .	. . . . .	. . . .	10	
9 00	. . . . .	468 00	16 00	2	6	Weekly, ...	. . . . .	52		
9 00	26 weeks,	234 00	12 00	2	4	. . . . .	. . . . .	26	10	75 00
6 00	13 "	234 00	11 04	2	4	Monthly, ...	. . . . .	39	10	
12 00	2 "	600 00	15 00	2	1	Weekly, ...	20 per cent., .	50	10	25 00
6 00	26 "	156 00	. . .	2	1	. . . . .	. . . . .	26	10	100 00
10 00	4 "	480 00	18 00	2	4	. . . . .	. . . . .	48	10	125 00
9 60	8 "	422 40	. . . .	2	4	Monthly, ...	Two weeks, .	44	10	12 00
7 00	17 "	245 00	. . . .	2	4	Weekly, ...	. . . . .	35	10	12 00
. . .	. . . . .	. . .	. . . .	2	4	. . . . .	. . . . .	. . . .	10	17 50
7 50	26 weeks,	195 00	15 00	2	2	Monthly, ...	One half, . . .	26	10	15 00
12 00	26 "	312 00	21 00	2	3	. . . . .	. . . . .	26	10	10 00
. . .	35 "	. . .	. . . .	2	7	. . . . .	. . . . .	17	. . . .	4 00
10 00	17 "	350 00	12 00	2	4	Monthly, ...	. . . . .	35	12	30 00
6 50	. . . .	338 00	. . . .	2	4	Weekly, ...	Two thirds, .	52	13½	2 50
10 50	6 weeks,	483 00	. . . .	2	1	"	. . . . .	46	13	45 00
10 00	3 "	490 00	18 00	2	1	"	. . . . .	49	14	75 00
4 50	3 "	220 50	. . . .	2	2	. . . . .	Two thirds, .	49	10	
12 48	6 "	574 08	. . . .	1	. .	Monthly, ...	Ten days, . .	46	10	
9 00	5 "	423 00	15 00	2	3	Weekly, ...	. . . . .	47	10	
6 00	2 "	300 00	. . . .	2	6	Monthly, ...	half a month,	50	10	
6 90	. . . . .	. . . .	. . . .	2	. . .	"	. . . . .	. . . .	10	
7 50	. . . . .	390 00	10 00	2	3	"	. . . . .	52	10	
6 00	. . . . .	312 00	. . . .	2	4	"	$10 00, ...	52	10	
10 50	2 weeks,	525 00	. . . .	2	4	Weekly, ...	. . . . .	50	12	15 00
9 00	. . . . .	468 00	. . . .	2	5	Monthly, ...	. . . . .	52	12	
3 42	2 weeks,	171 00	. . . .	2	1	. . . . .	$7 50, ...	50	10	10 00
6 00	10 "	252 00	. . . .	2	1	. . . . .	. . . . .	42	10 to 12	150 00
11 00	2 "	550 00	. . . .	1	. . .	Monthly, ...	. . . . .	50	10	30 00
13 25	. . . . .	689 00	15 00	2	3	Weekly, ...	. . . . .	52	10	
. . .	. . . . .	. . . .	. . . .	2	. . .	Monthly, ...	. . . . .	. . . .	. . . .	1 75
9 00	2 weeks,	450 00	15 00	2	. . .	Weekly, ...	. . . . .	50	10	
10 15	. . . . .	527 80	12 39	2	4	Monthly, ...	Fourteen days	52		
9 90	. . . . .	514 80	12 00	2	2	"	. . . . .	52	9	
10 00	. . . . .	540 00	. . . .	2	2	"	One month, .	54	10	
6 00	. . . . .	312 00	8 50	2	. . .	. . . . .	. . . . .	52	12	50 00
8 50	. . . . .	442 00	17 00	2	4	Monthly, ...	. . . . .	52	12 to 14	
5 00	. . . . .	. . . .	. . .	2	2	"	. . . . .	. . .	11	
6 50	3 weeks,	318 50	14 00	2	2	Semi-monthly, .	. . . . .	49	13	50 00
. . .	. . . . .	. . .	. . . .	2	3	" " .	. . . . .	. . . .	. . . .	50 00
11 71	. . . . .	608 92	. . . .	2	8	Monthly, ...	. . . . .	52	10	
10 00	. . . . .	520 00	14 00	2	2	"	One week, . .	52	10	
10 00	2 weeks,	500 00	. . . .	2	7	"	Two " .	50	10	1 00
5 95	17 "	208 25	9 00	2	3	Irregular, ...	. . . . .	35	11	50 00
23 22	26 "	603 72	. . . .	2	6	"	. . . . .	26	10	
7 00	11 "	287 00	7 00	2	1	Semi-monthly, .	Two days, . .	41	11	
9 00	4 "	432 00	. . . .	2	. . .	Irregular, ...	. . . . .	48	10	19 35

EMPLOYEES' EXPENDITURES.

Number of Returns.	FAMILY.		EARNINGS.				EXPENDITURES.									EXCESS OF—		Have you earnings for five years covered expenses?
	Adults.	Children.	Earnings of adults.	Earnings of those under sixteen years of age.	Wages for year of adults other than yourself.	Total earnings of family for the year.	Rent.	Fuel.	Groceries.	Clothing and dry goods.	Education.	Other expenses.	Recreation.	Total.	Expenses over earnings.	Earnings over expenses.	
1,	2	4	$421 20			$421 20	$60 00							$60 00			Yes.
2,	3	2	936 00			936 00		$60 00	$100 00	$100 00				260 00			Yes.
3,	3	2	514 80			514 80	45 00	10 00						55 00			Yes.
4,	1		132 00			132 00				35 00				35 00			Yes.
5,	4	1			$1,218 00	$1,818 00	156 00	50 00	800 00	300 00		$50 00	$30 00	1,386 00			Yes.
6,	3	1	468 00			468 00		40 00	75 00	75 00	$12 00	200 00		402 00			Yes.
7,	2	5	832 00			832 00	120 00	40 00	180 00	220 00	20 00	210 00	20 00	810 00			Yes.
8,	5	2	378 00		200 00	578 00	120 00	50 00	84 00	150 00		100 00	16 00	520 00			Yes.
9,	2	2															
10,	2		324 00			324 00	36 00							36 00			Yes.
11,	2	1	520 00		100 00	620 00		25 00	100 00	150 00		125 00		403 00			Yes.
12,	4		493 50			493 50								400 00			Yes.
13,	2	6	450 00			450 00	120 00	27 00	140 00	125 00	15 00	124 00		551 00		$101 00	No.
14,	5	3	582 12		900 00	1,432 12		35 00	206 95	75 00	5 00	61 00		600 00		982 12	Yes.
15,	2	2	459 00			459 00	66 00	35 00	165 00	116 00	15 00	7 50	50 00	442 95		16 05	Yes.
16,	2	2					48 00	58 00	132 59	40 00	10 00	10 00		459 50			Yes.
17,	2	3	388 62		211 38	600 00		36 00	480 00	40 00	10 00	4 00		570 00		30 00	Yes.
18,	3		842 40			842 40		30 00	100 00	25 00		40 00	5 00	300 00		542 40	Yes.
19,	2	1	465 30			465 30		60 00		180 00		110 00		350 00		115 30	Yes.
20,	3	1	638 40			638 40	72 00	20 00	132 59	40 00		10 00		274 59		363 81	Yes.
21,	3	2	661 44			661 44								600 00		61 44	Yes.
22,	2	1	299 52			299 52	48 00	8 00	240 00	80 00	25 00	50 00	50 00	501 00			No.
23,	2	5	360 00			360 00									201 48		No.
24,	2	4	576 00			576 00		30 00	500 00	200 00				730 00			Yes.
25,		3			450 00	1,026 00										296 00	Yes.
26,			780 00			780 00											Yes.
27,	2	2	514 50			514 50								450 00			Yes.
28,	2		360 00			360 00	96 00	15 00						111 00		64 50	Yes.
29,	2	3	624 00			624 00	100 00	20 00	300 00	100 00		25 00		546 00		249 00	Yes.
30,	2	2						20 00	15 00	25 00	6 00	10 00		76 00		78 00	Yes.
31,	2	4	655 20		400 00	1,055 20		20 00	450 00	200 00	1 00	25 00	20 00	801 60			Yes.
32,	4	5	405 60		736 00	1,141 60	75 00	30 00						600 00		254 20	Yes.
33,			484 00			484 00										541 60	Yes.
	3	1	662 40			662 40		40 0	120 00	50 00	15 00	340 00	100 00	505 00			Yes.
										270 00	30 00	100 00	40 00	6		62 40	Yes.

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EMPLOYEES' EXPENDITURES.—CONTINUED.

NUMBER OF RETURNS.	FAMILY.		EARNINGS.				EXPENDITURES.								EXCESS OF—		Have your earnings for five years covered expenses?
	Adults.	Children.	Earnings of adults.	Earnings of those under sixteen years of age.	Wages for year of adults, other than yourself.	Total earnings of family for the year.	Rent.	Fuel.	Groceries.	Clothing and dry goods.	Education.	Other expenses.	Recreation.	Total.	Expenses over earnings.	Earnings over expenses.	
87,	2	1	$792 00	. . . . .	. . . . .	$792 00	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . .	$600 00	. . . . .	$192 00	Yes.
88,	2	2	1,100 00	. . . . .	. . . . .	1,100 00	$144 00	$28 00	$300 00	$175 00	$15 00	$175 00	$60 00	$897 00	. . . . .	$203 00	Yes.
89,	4	1	400 00	$100 00	$100 00	600 00	144 00	36 00	240 00	100 00	2 50	37 50	. . . . .	560 00	. . . . .	40 00	Yes.
90,	2	3	690 00	. . . .	. . . . .	690 00	120 00	25 00	392 20	14 00	22 00	16 80	. . . . .	590 00	. . . . .	100 00	Yes.
91,	2	1	1,040 00	. . . . .	. . . . .	1,040 00	72 00	10 00	250 00	250 00	. . . .	100 00	150 00	832 00	. . . . .	208 00	Yes.
92,	2	1	726 00	. . . . .	. . . . .	726 00	60 00	. . . . .	150 00	. . . . .	8 00	. . . . .	. . . . .	218 00	. . . . .	508 00	
93,	2	2	705 00	. . . . .	. . . . .	705 00	168 00	25 00	384 00	100 00	. . . . .	. . . . .	73 00	750 00	$45 00		
94,	2	4	840 00	. . . . .	. . . . .	840 00	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	840 00	. . . . .	. . . .	Yes.
95,	3	7	1,300 00	150 00	. . . . .	1,450 00	100 00	40 00	500 00	250 00	2 00	50 00	20 00	962 00	. . . . .	488 00	Yes.
96,	4	2	312 00	. . . . .	. . . . .	312 00	. . . . .	25 00	200 00	50 00	5 00	. . . . .	. . . . .	280 00	. . . . .	32 00	Yes.
97,	2	3	262 08	. . . . .	. . . . .	262 08	. . . . .	28 00	240 00	90 00	13 00	2 00	. . . . .	373 00	110 92		
98,	2	1	564 00	. . . . .	. . . . .	564 00	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . .	. . . . .	. . . . .	No.
99,	2	3	270 00	. . . . .	. . . . .	270 00	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	216 00	. . . . .	54 00	Yes.
100,	2	7	312 00	. . . . .	. . . . .	312 00	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	312 00	. . . . .	. .	Yes.
101,	2	2	232 75	. . . . .	. . . . .	232 75	. . . . .	12 00	. . . . .	. . . . .	. . . . .	. . . . .	10 00	22 00	. . . . .	210 75	Yes.
102,	2	1	270 00	. . . . .	. . . . .	270 00	25 00	30 00	90 00	100 00	5 00	75 00	. . . . .	325 00	55 00	. . . . .	Yes.
103,	2	3	. . . . .	. . . . .	. . . . .	. . . . .	. . . .	12 00	10 00	10 00	2 00	3 00	. . . . .	37 00			
104,	2	2	500 00	. . . . .	. . . . .	500 00	125 00	12 00	75 00	45 00	5 50	75 00	10 00	347 50	. . . . .	152 50	
105,	2	3	561 60	. . . . .	. . . . .	561 60	108 00	18 00	248 00	100 00	. . . . .	63 00	12 00	549 00	. . . . .	12 60	No.
106,	2	1	120 00	. . . . .	. . . . .	120 00	. . . . .	. . . . .	. . . .	75 00	. . . . .	75 00	. . . . .	150 00	30 00		
107,	4	1	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	30 00	150 00	125 00	. . . . .	. . . . .	. . . . .	305 00			
108,	2	2	616 00	. . . . .	. . . . .	616 00	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	700 00	84 00	. . . . .	No.
109,	2	5	280 00	. . . . .	. . . . .	280 00	. . . . .	30 00	35 00	60 00	15 00	20 00	. . . . .	160 00	. . . .	120 00	Yes.
110,	2	2	276 00	. . . . .	. . . . .	276 00	60 00	16 00	25 00	25 00	2 00	25 00	5 00	158 00	. . . . .	118 00	No.
111,	6	1	708 24	. . . . .	. . . . .	708 24	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	600 00	. . . . .	108 24	Yes.
112,	2	1	630 00	. . . . .	. . . . .	630 00	75 00	32 00	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	107 00	. . . . .	523 00	Yes.
113,	5	4	792 00	. . . . .	200 00	992 00	100 00	22 00	250 00	135 00	12 00	200 00	10 00	729 00	. . . . .	263 00	Yes.
114,	2	1	576 00	. . . . .	. . . . .	576 00	. . . . .	. . . . .	. . . . .	250 00	2 00	300 00	30 00	582 00	6 00	. . . . .	No.
115,	4	3	270 00	. . . . .	. . . . .	270 00	. . . . .	18 00	175 00	50 00	1 00	25 00	10 00	279 00	9 00	. . . . .	No.
116,	4	2	480 00	. . . .	60 00	540 00	. . . . .	20 00	75 00	80 00	8 00	337 00	5 00	525 00	. . . . .	15 00	Yes.
117,	2	. . .	700 00	. . . . .	. . . . .	700 00	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . .	728 00	28 00	. . . . .	No.
118,	3	2	312 00	. . . . .	. . . . .	312 00	. . . . .	10 00	105 00	40 00	4 62	20 00	10 00	189 62	. . . . .	122 38	No.
119,	4	. . .	698 88	. . . . .	184 87	883 75	144 00	40 00	289 33	150 00	25 00	226 67	25 00	895 00	11 25	. . . . .	No.

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EMPLOYEES' EXPENDITURES.—CONTINUED.

NUMBER OF RETURNS.	FAMILY.		EARNINGS.				EXPENDITURES.								EXCESS OF—		Have your earnings for five years covered expenses?
	Adults.	Children.	Earnings of adults.	Earnings of those under sixteen years of age.	Wages for year of adults other than yourself.	Total earnings of family for the year.	Rent.	Fuel.	Groceries.	Clothing and dry goods.	Education.	Other expenses.	Recreation.	Total.	Expenses over earnings.	Earnings over expenses.	
173,	2	2	$220 50			$220 50	$30 00					$100 00		$130 00		$90 50	
174,	1		574 08			574 08				$75 00	$27 50	200 00	$150 00	452 50		121 58	Yes.
175,	2	3	423 00			423 00								415 00		8 00	Yes.
176,	2	6	300 00			300 00		$20 00	$200 00	74 40	2 60		3 00	300 00			Yes.
177,	2							20 00	200 00					220 00			Yes.
178,	2	3	390 00			390 00	66 00	25 00	200 00	94 00	5 00			390 00			Yes.
179,	2	4	312 00			312 00	55 00										No.
180,	2	4	525 00		$45 00	570 00	40 00	20 00	30 00	70 00	26 00	214 00		400 00		170 00	Yes.
181,	2	5	468 00			468 00	30 00	26 00	260 00	75 00	15 00	52 00		468 00			No.
182,	2	1	171 00			171 00	60 00	25 00									No.
183,	2	1	252 00			252 00				5 00	10 00	75 00	10 00	100 00		152 00	No.
184,	1		550 00			550 00	60 00	13 00	20 00	40 00				133 00		417 00	Yes.
185,	2	3	689 00			689 00	120 00	12 00	312 00	100 00	10 00	96 00	39 00	689 00			Yes.
186,	2																
187,	2		450 00			450 00	63 00	22 00	95 00	30 00	12 00	10 00		232 00		218 00	Yes.
188,	2	4	527 80		200 00	727 80	100 00	20 00	200 00	200 00	12 00	100 00	60 00	692 00		35 80	Yes.
189,	2	2	514 80			514 80		40 00	150 00	100 00	30 00	180 00	14 80	514 80			No.
190,	2	2	540 00			540 00		15 00	220 00	50 00	15 00	100 00		400 00		140 00	Yes.
191,	2		312 00			312 00		25 00	75 00	25 00	2 00	30 00	5 00	162 00		150 00	Yes.
192,	2	4	442 00			442 00	72 00	25 00	260 00	60 00	3 00	10 00	5 00	435 00		7 00	No.
193,	2	2					96 00										No.
194,	2	2	318 50			318 50											No.
195,	2	3	608 92														Yes.
196,	2	8	520 00	$239 32		848 24	120 00	30 00	455 00	100 00	20 00	25 00	25 00	775 00		73 24	Yes.
197,	2	2	500 00			520 00	108 00	25 00	250 00	75 00		10 00	5 00	473 00		47 00	Yes.
198,	2	7	208 25		900 00	1,400 00	48 00	50 00	400 00	360 00	10 00	285 00		1,093 00		307 00	Yes.
199,	2	3	603 72			208 25		18 00	80 00	65 00	20 00	35 00		218 00	$9 75		No.
200,	2	6	287 00			603 72											No.
201,	2	1	432 00			287 00	72 00	12 00	156 00	70 00	7 00			317 00	30 00		Yes.
202,	2					432 00			96 00					96 00		336 00	Yes.

* Taxes.

PAYMENT OF WAGES.

To the wage worker who secures employment, two things are of great importance, viz: The rate received per day and the time and manner of payment. Labor, faithfully performed, should be entitled to receive its earnings at the earliest practical period, in order that its wants may be properly supplied upon the most advantageous terms. Payment in money every one or two weeks places the working man, who has steady work, in a position to secure the necessities of life at the cheapest rates, and of the best quality, from the fact that he has the cash to purchase with, and thus can command the best terms. Wages paid monthly circumscribes, to an extent, his ability to live cheaply, for, unless commanding extraordinary wages, the cash paid him at the beginning or close of the month, when distributed among his varied necessities, becomes exhausted ere the coming of another pay day, and as a result he must seek credit. He may indeed be fortunate if he can obtain credit; but with fortune thus smiling upon him, he is placed at a disadvantage, for without humble entreaties, the credit will not be given, and thus he becomes a supplicant for favors, at usually advanced rates, instead of being able to command goods with cash at the very lowest prices, for as a rule, in making purchases of every description, there is always a percentage in favor of cash in hand. "Cash" is worth more than the very highest credit in purchasing any commodity. The laborer is said to be "worthy of his hire," and earnings is worth very much more to him, when promptly paid, than it is when payment is delayed. "A nimble penny is better than a slow shilling." A bank note, when due, is promptly paid, so should the laborer receive his wages at the ealiest practical period following the work done, for as it is delayed, it becomes a forced loan upon him, in order to increase the capital of his employer. Prompt and frequent payments are in the interest of good morals. It promotes manliness, which can only be maintained by one who feels himself out of debt. To be independent of creditors, as of all other men, is the first condition of self-respect. Of eleven hundred and eighty-five blanks returned, three report that they pay daily, two hundred and nineteen pay weekly, one hundred and forty every two weeks, six hundred and sixty-eight monthly, one every two months, two quarterly, three yearly, fifty-six as it is desired or called for, twenty-one cash and merchandise, one reports that they do not pay in cash, one pays as convenient, five cash, one to men weekly and women monthly, one weekly and monthly, one cash and merchandise every four months, thirty-three no regular pay day. One hundred and forty-six give no account of payment, and forty-five report not in operation.

A system, imported to this country from England, commonly called the "truck system," or, as denominated by many workmen, the "pluck-me" system, is one that has caused considerable complaint throughout the State for years. It is the payment of wages in store goods, or, as many workingmen say, in "calico and molasses." This system, when arbitrarily enforced, is, to say the least, very unjust, more especially when work is scarce, for then workmen's necessities are taken advantage of, and his wages paid in part or in whole in store goods, at exorbitant prices. Large companies who have a monopoly of mining and manufacturing in given localities, establish pay-days of long intervals, and erect stores where their employés are expected to deal, to the exclusion of all others. Others issue orders upon stores in the same locality, owned in part or in whole by other parties, from whom the employé obtains his goods, and to whom the company renders an account of earnings, so that the store-keeper may be fortified against the workingman receiving, in "truck," more than his wages amount to. The presumption is, that the stores allow a percentage to the firm issuing the orders, upon all sales made, thus adding to the profits of the manufacturer a sum extorted from the amount paid the wage worker, without the consent of the worker himself, to whom, as earnings, it justly belongs. From all information received, there appears to be but few, if any, localities where labor is absolutely *commanded* or compelled to accept store orders in part payment for wages, and yet correspondents write that should they fail to deal in their employer's store they are either requested to, or otherwise the labor assigned them becomes so limited that a living is scarcely possible. Firms may pay as high rate of wages as any or all others, but if others pay cash while they pay in store goods, the rate paid is virtually lower, as a large percentage is returned from the sale of exorbitant high priced store goods, thus increasing the capital of the employer and decreasing the ability of the employé to live by reducing the purchasing power of his earnings.

Manufacturers and operators who pay cash, cannot fairly compete with those who pay in store goods; the latter can at times, sell at a less figure than the former, though the price for labor may be the same, from the fact, that he relies upon the store goods forced upon the workmen to return him large profits, thus reducing the cost of production. Stores operated by establishments employing a great number of men, dwarf the community and locality in which they are located, as they monopolize the business outside of manufacturing or mining, to the exclusion of other enterprising business men, and place their employés at a disadvantage by excluding competition in the sale of articles necessary to their well being.

As a rule, too, exceeding care is taken that the employé secures in goods, no more than the amount of his earnings, so, that with rare exceptions, when employment ceases, even temporarily, his base of supplies vanishes. It therefore, in effect, places no premium upon honesty, nor even frugality, for many men of large families, with but moderate wages, enjoying the best of

health, cannot, in many localities, more than keep even with the world. So that when employment ceases, even though he has dealt with his employer for years, the store is closed to him. If he dealt with ordinary merchants, whose sole business it was to accommodate at fair prices the public generally, and had paid his way faithfully for a number of years out of his earnings, it is highly probable, that in times of adversity, past relations would guarantee credit to an extent sufficient to tide him over the depression. It is argued by those who seek to uphold this system, that the accommodation it affords at times to workmen, who, when unable to await the regular pay-days, obtain subsistence by receiving goods from the stores, justifies their continuance, and that in addition to this, they are instrumental in providing for families whose wants oftentimes would not be supplied through the improvident habits of the father and husband. But if they are so exceedingly anxious concerning the welfare of the workman, and especially his family, could they not with equal propriety, exert themselves in obtaining money to distribute for the benefit of families, and in payment for labor performed, for to say the least, goods can scarcely be obtained *without* money. Again, it is assumed, that where a system is in vogue, which necessitates the wage worker to take all or a part of his earnings in store goods, does not necessarily compel him to remain there, but that as an American citizen, he is free to migrate whither he pleases. Undoubtedly that is true, and if out of his earnings, he can save sufficient, then he can exercise the privilege very readily; but if full time is not afforded, or ill health prevails, and thus between a scarcity of work and the absorption of wages in high-priced store goods, no earnings are left, then he must say with the Third Citizen in Coriolanus, "We have the power in ourselves to do it; but it is a power we have no power to do." The truck system practiced in England was imported to this country, and for the same identical purposes, "solely because it enabled the employer to add the profits of trade to the profits of manufacture;" so too, came in due time, the cry from the wage worker for the interposition of law, to help the weak against the strong in uprooting it.

The first act aimed at the truck system in England passed in 1464, under King Edward IV, at a time when* "in the occupation of cloth making the laborers thereof had been driven to take a great part of their wages "in pins, girdles, and other unprofitable wares, &c., therefore it is ordained and established that every man and woman being cloth makers, from the (said) feast of St. Peter shall pay to the carders, spinsters, and all such other laborers, in the said trade, lawful money for all their lawful wages." This act was to destroy an old system, in which the wage worker received, in exchange for labor, a commodity which he in turn would exchange for "whatever he might desire—food, drink, clothing, fuel, or shelter." The form of truck of which complaint is made, that of the "employer furnishing the mechanical laborer goods for his personal and family consumption,

* The Wages Question, by Francis A. Walker, M. A., Ph. D.

the charges for the same being a set off against the wages due" "did not become a matter of legislative interference until the *act of 1st and 2d, William IV, 1831, was passed, which provided, in all contracts for the hiring of any artificers in any of the trades enumerated, the wages of such artificer shall be made payable in the current coin of the realm, and not otherwise." The trades enumerated are the manufacture of iron and salt, the mining of coal or iron, limestone, salt rock, the working or getting of clay, stone, or slates, manufacturers of salt, bricks, tiles, or quarries, hardware manufacturers, textile manufacturers, glass, china, and earthenware, manufacturers of leather, and others. Prof. Walker says "that previous to the passage of the aforementioned act, workmen were compelled to deal at the master's store, on pains of discharge. Sometimes hints accomplished the object; sometimes threats were necessary; sometimes examples had to be made. However strong the disapprobation of the workman, or of the large community around, the profits of truck were so enormous as to overcome the scruples and the shame of many employers. These profits were five-fold: First. The ordinary profit of the retail trader, large as that is, and larger, as we know it becomes, in proportion to the ignorance and poverty of the customer. Second. There was a great dimunition of ordinary expenses due to the compulsion exercised. The trader, who was also the manufacturer, did not have to resort to costly advertising to draw custom, to maintain an attractive establishment in a convenient location, or to keep up an efficient body of clerks and attendants. The only advertisement needed was the omnious notice to trade there. The store might be the merest barn, the service might be reduced to a degree involving the greatest inconvenience, and even hardship, to the customer. Third. It seems to be abundantly proved by the evidence before the several commissioners and committees, that the charges at the truck shops were generally higher, by five, ten, or fifteen per cent., than at the ordinary retail stores. Fourth. The employer having absolute control of the laborer's wages, incurred no bad debts, such as eat up the profit of the open trader. Fifth. The quality of the goods furnished was likely to be as best suited the interests of the employer who, for the best of reasons, feared no loss of custom."

That such a state of affairs exist at this time, in this State, requiring equal remedies by the enactment of law, possibly could not be substantiated, but that abuses exist, and are practiced, the testimony of many correspondents fully corroborate. The rapid growth of intelligence in every walk of life, with its ability to portray justice and equity, the diminution of corporate powers, the numerical increase of individual and combined capitalists, active competition in trade, all induces to the employment of the best class of labor, and as that class usually command fair treatment, and the best of wages, the facilities to enforce the evils of the truck system gradually diminishes.

The writer, twenty years ago, was employed by—then and now—one of

the largest iron firms in the State. His wages, at the time, were paid in scrip, redeemable only in store goods. He occupied a part of a tenement, the owner of which, for a period, accepted the rent due in store goods also. Finally, the owner refused payment in such currency, and at the expiration of three months, we were sued for rent, compelled to confess judgment, and then appeal to our employer for sufficient cash, from our earnings to pay it. Ascertaining that the amount required, was due us for work done, he, in the "goodness of his heart," furnished the money necessary to pay the debt. To save a repetition of the proceedings and consequent cost, we were compelled to move in a house owned by the company, where, as long as health and strength were given us, we were secure from the meshes of the law. The same firm continue to operate the works, and keep the store, both of which, however, are greatly enlarged; but there has grown up, around and about them, a large number of works of a similar character, operated by individuals, who pay strictly in cash, and as a result, goods are sold as cheaply, and of equal quality, as from any other merchant in the county, while the compulsory process is wholly discarded.

The history of laws enacted in this country for the suppression of the truck system proves that they are of little avail, as those who adopt and enforce the system, while great advocates of law in the suppression of every conceivable movement susceptible of diminishing their rights and privileges, wholly ignore them. For the workman to endeavor to enforce them would be immediate discharge, and owing to circumstances would probably place him in a helpless condition, which he shrinks from by remaining a silent sufferer.

To enact law would require some designated official to enforce it, a proposition likely to meet with objections, as the citizens for whose benefit the law is presumed to be passed, should avail its benefits by personally exerting themselves in enforcing it. The Commissioner of the Bureau of Labor and Industry of New Jersey, in his first report, issued in 1879, says: "The evils and wrongs resulting from this system are not confined to the extortionate rates charged for goods, but men are frequently forced to trade beyond their wants, in order to secure employment, for those who spend the most of their earnings at the company's store are given the preference in work. As a matter of business, it is to the interest of the employers to induce their employés to become extravagant. To illustrate: Suppose two men earn $800 each in a blast, if one deals but $400 of his earnings at the store, and the other his whole earnings, the proprietor would make $120 of the purchases of one, while he would make $240 of the purchases of the other. The result is, the one that spends most of his earnings at the store is given the preference over the one that is more frugal, in order to save something for a time of need. The evils of the system has long been such that the Legislature has been petitioned year after year to suppress it by law, but as yet nothing has been done that has had effect in doing so." In the same report are published two acts, as follows:

"An act for the better securing of wages to workmen and laborers in the State of New Jersey." Approved April 14, 1864.

3. SECTION 1. That it shall not be lawful for any iron master, foundryman, collier, factoryman, employer, or company, their agents or clerks, to pay the wages of workmen or laborers by them employed, in either printed, written, or verbal orders, except for the payment of money, upon any storekeeper or storekeepers, or other dealers in merchandise or other articles, whether connected in business with the said iron master, foundryman, collier, factoryman, employer, or company or not. Any iron master, foundryman, collier, factoryman, employer, or company paying to the said workmen or laborer so as aforesaid by him employed, or authorizing their agent or agents or storekeepers so to do as aforesaid, shall forfeit the amount of said pay, or any part of the wages of said workman or laborer given in orders upon any such store, except as aforesaid, or any orders so given or paid, and the same shall not be offset against the wages of said workman or laborer, but he shall be entitled to recover the full amount of his wages as though no such order or orders had been given or paid; and no settlement made with such employer shall bar such action until after the lapse of six months after such settlement.

4. SECTION 2. That the provisions of this act shall extend to all seamstresses or females employed in factories or otherwise.

5. SECTION 3. That this act shall be taken and deemed to be a public act, and take effect on the 4th day of July, 1864, except in the counties of Morris, Sussex, Somerset, Middlesex, Monmouth, Burlington, Warren, Ocean, and Hunterdon, which counties are specially excepted from the provision of this act; and excepting, also, the county of Essex, in which said county this act shall take effect on the 5th day of January, 1865.

An act for the better securing of wages to workmen and laborers in the State of New Jersey. Approved March 9, 1877.

1. That it shall not be lawful for any person or corporation in this State to issue, for payment of labor, any order, or other paper whatsoever, unless the same purport to be redeemable for its face value, in lawful money of the United States, by the person giving or issuing the same: *Provided, however*, Nothing in this act contained shall be held to prevent any employer from making any deduction for money due him from any laborer or employé.

2. That if any person or corporation shall issue for payment of labor any paper in violation of the first section of this act, he, she, or they shall be guilty of a misdemeanor, and, upon conviction thereof, shall be fined in any sum not to exceed five hundred dollars, at the discretion of the court.

The following law was passed in Ohio, in 1877:

An act to punish certain offenses therein named.

SECTION 1. *Be it enacted by the General Assembly of the State of Ohio*, That it shall be unlawful for any person, firm, or corporation, to pay the

wages of labor in goods or supplies, through the intervention of scrip, or any other evidence of indebtedness, or otherwise, at higher prices than current cash rates for like goods and supplies at the nearest retail market: *Provided*, That the actual cost of the transportation of such goods and supplies, from such nearest market to the place of sale, may be added.

SECTION 2. It shall be unlawful for any person, firm, or corporation, to sell goods or supplies to laborers on orders or other evidences of indebtedness issued to such laborers by their employers, or to sell to laborers, by any arrangement with their employers, by which such laborers are to receive such goods or supplies on their wages, at higher prices than current cash rates for like goods and supplies at the nearest retail market: *Provided*, That the actual cost of the transportation of such goods and supplies from such nearest market to the place of sale may be added.

SECTION 3. Any person making any sale in violation of this act, whether as principal, agent, clerk, or otherwise, shall be guilty of a misdemeanor, and, upon conviction thereof, shall be fined not less than five dollars, nor more than fifty dollars.

SECTION 4. This act shall take effect and be in force from and after its passage.

An act supplementary to an act, "to amend, revise, and consolidate the statutes relating to crimes and offenses, and to repeal certain acts therein named, to be known as title one, crimes and offenses, part four, of the act to revise and consolidate the general statutes of Ohio, passed May 5, 1877, vol. 74, p. 240.

SECTION 1. *Be it enacted by the General Assembly of the State of Ohio*, That it shall be unlawful for any person, firm, company, or corporation, to issue or use any scrip, token, check, draft, or certificate of indebtedness, payable otherwise than in money, in the payment of, or accounting to any person for the wages of work and labor.

SECTION 2. It shall be unlawful for any person, firm, company, or corporation, to issue, use, or circulate, or cause to be issued, used, or circulated, any check, token, promise in writing, or evidence of indebtedness, designed, intended, or calculated to be circulated or issued as money, or in lieu of money, other than lawful money of the United States.

SECTION 3. Any person or persons offending against any of the provisions of this act, shall be held guilty of a misdemeanor, and upon conviction thereof before any court of competent jurisdiction, shall be fined in any sum not less than ten dollars, nor more than one hundred dollars.

SECTION 4. This act shall take effect from and after its passage.

Referring to the enactment of these laws, the Commissioner of the Bureau of Labor Statistics of Ohio, in his report for 1878, says: "It was presumed that the passage of the foregoing laws would, without any special effort on the part of those heretofore paid in merchandise, result in the abandonment of the system, or such a modification of it as to remove the causes of complaint, especially in reference to the charges for goods furnished. In the past, when operatives in the coal regions struck work for any cause, and

the ery of riot was raised, the whole power of the State has been invoked to enforee them into eomplianee with law. It was reasonable, therefore, to suppose that those who in the past so promptly invoked State aid to enforee the laws thereof, would themselves be prompt and willing respeetors of them, espeeially when sueh eomplianee would, to a very great extent, remove the possibility of outbreaks in their respective loealities. Expeetation in this regard has not been verified; the laws adopted have not aeeomplished the end in view; they are daily and hourly violated; eheeks and store pay eontinue; the laws of the State nullified; not by violenee, it is true, but never theless ignored. The laws as heretofore given are not self-operating; the sufferers under the system are virtually the slaves of it, and dare not attempt to enforee the provisions of the laws, and no one in authority is authorized to attend to their enforeement. The seareity of employment in and about the mines and furnaees, the large number eonstantly seeking employment, is a eondition of affairs that prevents many from testing the provisions of the laws, who, under other eonditions, would promptly invoke the aid and proteetion of the eourts. For an individual to seek to enforee the laws, would result in his diseharge from employment, and, perhaps, in foreing him to leave the eounty. Few men are thus willing to saerifiee themselves for a possible good to their fellows. These laws should be made operative. The fact that they are on the statute book, and no reason ean be advanced why they should not be enforeed, renders it a duty that sueh additional legislation be had as will seeure their prompt and systematie enforeement. The experienee of other States and other eountries proves that the system ean only be eliminated by its being made the duty of some legal offieer to prosecute offenders."

In his annual message to the Legislature in 1863, Governor Curtin said as follows:

"It has eome to my knowledge, that in some parts of the State a system exists of paying the wages of workmen and laborers, not in money, but in orders on storekeepers for merehandise and other artieles. This system, by preventing all eompetition, leaves the men to the uneontrolled diseretion of the store-keepers. It is a system most unwise and unjust, and it affeets elasses of useful eitizens who, as they live by the proeeeds of their daily labor, have not adequate means to resist it. I have no doubt that most of the diffieulties whieh oeeasionally oeeur between employers and their workmen are due to the prevalenee of this system. That every man for a day's labor should reeeive a fair day's wage, is but the dietate of eommon honesty. And while it would be most unwise for the State to interfere at all with the rate of wages, it is, in my judgment, ineumbent on her to proteet her laboring population, by requiring that whatever may be the wages stipulated, they shall be so paid that the reeipient may purehase neeessaries for himself and family, where they ean be had best and cheapest. I do most earnestly reeommend this subject to the Legislature for prompt and effeetual action."

In pursuanee of said recommendation, Mr. Reilly, Senator from Sehuyl-

kill, on February 5, 1863, introduced a bill, entitled "An act to prevent the payment of workmen and laborers in orders upon store-keepers."

The bill passed both Houses, as follows:

An act to prevent the payment of workmen and laborers in orders upon store-keepers.

Section 1. That from and after the passage of this act, it shall not be lawful for any iron-master, foundryman, collier, factoryman, or company or other employer of workmen and laborers, or their agents or clerks, within this Commonwealth, to pay the wages of workmen or laborers by them employed, in either printed, written, or verbal orders upon any store-keepers, shop-keeper or shop-keepers, or other dealer or dealers in merchandise or other articles, whether connected in business with the said iron-master, foundryman, collier, factoryman, or other employer of workmen, or not.

Section 2. That any employer of workmen or laborers, any iron-master, foundryman, collier, or factoryman paying the said workman or laborer so by him employed, or authorizing and directing his, her, or their agent or agents, clerk or clerks, to pay any part of the wages of his said workmen or laborers in an order or orders, upon any such store-keeper, shop-keeper, or other dealer in merchandise or other articles, shall forfeit the amount of said order or orders so given or paid. The same shall not be recoverable at law, the amount thereof shall not be defalked against the wages of said workman or laborer, and he shall be entitled to recover the full amount of his wages, as though no such order or orders had been given or paid, and no settlement or settlements made with such employer shall bar such recovery. And any such employer of workmen, iron-master, foundryman, collier, or factoryman offending against the provisions of this act, shall be guilty of misdemeanor, and upon a conviction thereof, shall be punished with a fine and imprisonment, at the discretion of the court trying the same."

The Governor not being required under the terms of the Constitution, to either approve or return the bill to the Legislature of that year, withheld it until the following, when, according to law, he returned it with his objections to the Legislature of 1864. In withholding his signature to the bill, he reasoned as follows:

"The bill herewith returned, does not include all employers of labor, but only iron-masters, foundrymen, colliers, and factorymen, or companies, agents or clerks, and it may be doubtful whether it prohibits even these from paying wages in merchandise or other articles, directly from stores or shops owned by themselves, and without giving any printed, written, or verbal orders for the same, on any shop-keeper or store-keeper. The penalties imposed by the second section, are confined to iron-masters, foundrymen, colliers, and factorymen, and do not appear to extend to any incorporated companies. On the whole, the bill is so imperfect and ambiguous, that I have determined to return it without my approval, especially as it is intended to protect a class who ought not to be driven to litigation to ob-

tain a judicial construction of doubtful claims. I hope the Legislature will pass a bill on this subject, the provisions of which will be better considered."

Several times since, bills have been introduced at the different sessions of the Legislature, looking to the suppression of the "truck system." As an example, in 1869, Mr. Keene introduced the following bill:

An act prohibiting corporations, members or officers thereof, or contractors under such corporations, from keeping or maintaining, or being interested in the keeping or maintaining of stores, or issuing orders, due bills or other evidence of debt, in the payment of any labor, service or work done for such corporations.

SECTION 1. *Be it enacted by the Senate and House of Representatives of the Commonwealth of Pennsylvania in General Assembly met, and it is hereby enacted by the authority of the same*, That from and after the passage of this act, it shall not be lawful for any corporation incorporated, or hereafter to be incorporated within this Commonwealth, or any president, manager, director, agent, member, or other officer whatsoever, of any such corporation, or contractor or contractors under such corporation, to keep or maintain, or be interested in the keeping or maintaining in any manner whatsoever, of a store or stores for the vending of goods or wares, groceries, hardware, queensware or any other merchandise of any character whatsoever; and any such corporations, person or persons, keeping or maintaining, or interested in the keeping or maintaining in any manner whatsoever, such store or stores, in violation of this act, every such offender or offenders, shall be guilty of a misdemeanor, and on conviction shall be sentenced to pay a fine, not less than one thousand dollars, nor more than five thousand dollars.

SECTION 2. It shall not be lawful for any such corporation, president, manager, director, agent, member, or any other officer whatsoever, of any such corporation or contractor or contractors, under any such corporations, to issue any order or orders, due bill or due bills, or other evidence of debt whatsoever, to any person or persons, partnerships, or associations, in payment of any labor, service, or work done, or to be done, for any such corporation. And if any such corporation, person or persons, issue any such order or orders, due bill or due bills, or other evidence of debt whatsoever, shall not be deemed, taken, or construed to be a payment of any such labor, service, or work. And it shall be lawful for any person or persons who has performed any such labor, service, or work for any such corporation or contractor or contractors, their heirs, executors, administrators, or assigns, to sue any such corporation, contractor, or contractors, for the payment of any such labor, service, or work done or performed for any such corporation or contractor or contractors, and upon the trial of any such suit any order or orders, due bill or due bills, or other evidences of debt whatsoever issued in violation of this act, shall not be admissible in evidence either as a payment or a set-off for any purpose whatsoever. And the plaintiff or plaintiffs in any such suit shall recover as fully and effectually as if no such order or orders, due bill or due bills, or other evidence of debt whatsoever had been

issued. Nor shall any agreement, under seal or otherwise, made or be made, by any person or persons, performing or about to perform, or after performing any such labor, service, or work, to take, or accept any such order or orders, due bill or due bills, or other evidence of debt whatsoever issued in violation of this act, be deemed, taken, or construed to estop any such person or persons, their heirs or legal representatives, from showing such agreement to be invalid and void, and of no effect, either in law or in equity, and all such agreements are hereby declared to be null and void, and of no effect whatsoever, either in law or in equity, notwithstanding any agreement or waiver to the contrary, by the person or persons for whose benefit this act is enacted and declared to be the law of this Commonwealth.

Section 3. The true intent and meaning of this act is, that anything whatsoever shall not be construed, deemed or taken to be a payment by any such corporation, or contractor or contractors, other than á payment in lawful money of the United States of America, to the person or persons performing or to perform such work, labor or service, their heirs or legal representatives, or the *bona fide* holder or holders of such person or person's written order or request.

When it came up for consideration, it was defeated upon second reading.

The act of 1874, entitled "An act to provide for the incorporation and regulation of corporations," which was in pursuance of the new Constitution, contains the following:

Section 43. "Every manufacturing, mining or quarrying company, incorporated under the provisions of this act, shall be confined exclusively to the purposes of its creation as specified in its charter, and no such company shall manufacture or sell any commodity or articles of merchandise, other than those therein specified. No such company shall engage in, nor shall it permit any of its employés or officials, to engage in the buying or selling upon the lands possessed by it of any wares, goods, or commodities or merchandise, other than those specified in their charter or necessary for the manufacture of the same. No such company shall permit to be withheld, or authorize or direct the withholding of wages due any of its operatives or employés, by reason of the sale or furnishing of goods, wares or merchandise by any person to such operatives or employés, unless the same be withheld by reason of, and in obedience to due process of law; but nothing herein contained, shall prohibit any such company from supplying to its employés oil, powder, and other articles and implements necessary for or used in mining."

This, we believe, is the only provision of law upon the statute books in this State, that aims at the suppression of stores kept by companies; but as it is purely prospective, affecting such corporations only as shall organize under the provisions of the aforementioned act, it does not provide for any remedy to reform abuses already existing. Efforts were made in succeeding years but without avail, until the session of 1879, when the following bill introduced by Mr. Schnatterly, Senator from Fayette county, passed both branches of the Legislature:

An act to secure to operatives and laborers engaged in and about coal mines and manufactories of iron and steel, the payment of their wages at regular intervals, and in lawful money of the United States.

SECTION 1. *Be it enacted by the Senate and House of Representatives of the Commonwealth of Pennsylvania in General Assembly met, and it is hereby enacted by the authority of the same*, That from and after the first day of September, one thousand eight hundred and seventy-nine, all persons, firms, companies, corporations, or associations in this Commonwealth, engaged in mining coal, or mining and manufacturing it, or manufacturing iron or steel, or both, employing ten or more hands, shall pay their employés as provided in this act.

SECTION 2. All persons, firms, companies, corporations, or associations engaged in the business aforesaid, shall settle with their employés at least once in each month, but the employés shall have the privilege to give orders for money or merchandise on his employers, for such amounts as he may have earned and have to his credit, from time to time during the month, and pay them the amounts due them for their work or services in lawful money of the United States, or the cash order as described and required in section three of this act.

SECTION 3. That it shall not be lawful for any person, firm, company, corporation, or association, their clerk, agent, officer, or servant, in this State to issue for payment of labor, any order, or other paper whatsoever, unless the same purports to be redeemable for its face value in lawful money of the United States, bearing interest at legal rate, made payable to employé or bearer, and redeemable within a period of thirty days by the person, firm, company, corporation, or association giving, making, or issuing the same. And any person, firm, company, corporation, or association engaged in the business aforesaid, their clerk, agents, officers, or servants, who shall issue for payment of labor any paper or order other than the one herein specified, in violation of this section, he, she, or they shall be guilty of a misdemeanor, and upon conviction, shall be fined in any sum not exceeding five hundred dollars, in the discretion of the court.

SECTION 4. That from and after the passage of this act, it shall be unlawful for any person, firm, company, corporation, or association engaged in mining or manufacturing as aforesaid, and who shall likewise be engaged or interested, directly or indirectly, in merchandising, as owner, or in the per centum of profit obtained from the sale of any such merchandise, to knowingly and willfully sell to any employé any merchandise whatsoever for a higher price than he sells the same article to other persons, and any person, or member of any firm, company, corporation, or association, his or their clerk, agent, or servant who shall violate this section of this act, shall be deemed guilty of a misdemeanor, and for each offense, upon conviction, shall be fined any sum not exceeding five hundred dollars, or undergo an imprisonment, in the county jail, for a period not exceeding six months, or both, or either, in the discretion of the court.

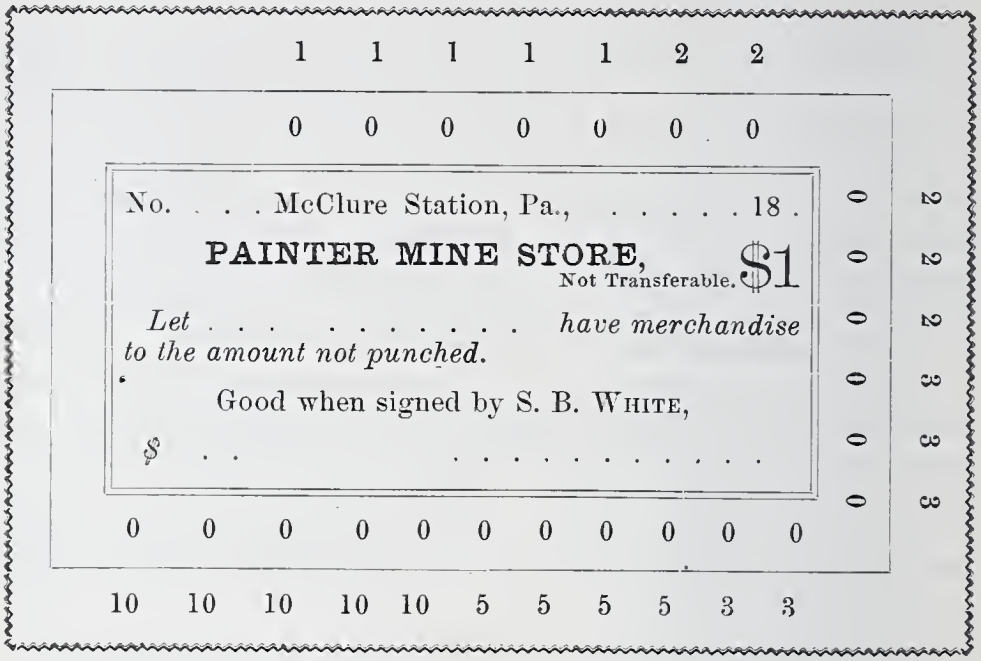
Section 5. That if any person, firm, company, corporation, or association, shall refuse or neglect to pay any of their said employés at the intervals of time as aforesaid, or shall neglect or refuse to redeem any of the cash orders herein provided for within the time specified, if presented, and suit should be brought for the amount overdue or unpaid, judgment for the amount of said claim proven to be due and unpaid, and a penalty of five per centum of such amount additional for each and every month's delay, shall be rendered in favor of the plaintiff in such action: *Provided*, That nothing in this act shall interfere with any previous contract between the employer and employés.

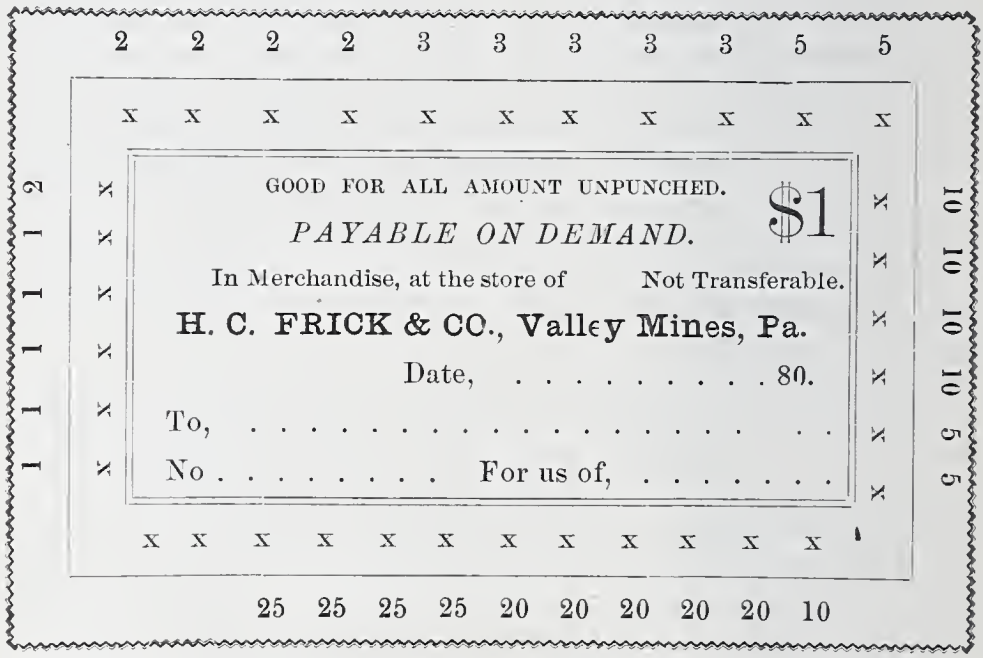
The foregoing bill failed to meet the approval of Governor Hoyt, and, as a consequence, his objections thereto were filed in the office of the Secretary of the Commonwealth, as the Legislature in the mean time had adjourned. The principal reason assigned by his Excellency in his veto is the invidious character of the bill, confining its operations simply to mining, steel, and iron companies, whereas it should, if applicable at all, be extended to industries of every class.

In the circulars sent to mining and manufacturing companies, the following question was propounded: "Do you keep a store in connection with your works?" Seven hundred and forty-seven answers were received; five hundred and forty-seven report as not keeping any store; one hundred and seven report keeping a store, with no comment; eleven report keeping a store, but say workmen are not compelled to patronize; three report, give orders on store if required; two report, keep a store, but not connected with works; one reports, draw orders on another company; three report "indirectly;" one mining company reports as having no store, but contractor interested in one; one reports as "keeping a small store for convenience, as we are at a distance from the town;" seventy-one return the question unanswered.

In order to obtain further information upon this subject, a general circular or letter was prepared, and addressed to various employés and others throughout the counties of Allegheny, Armstrong, Beaver, Bradford, Butler, Clarion, Fayette, Lawrence, Lycoming, Luzerne, Mercer, Schuylkill, Sullivan, Tioga, Westmoreland, Washington, and Venango. The foregoing counties were supposed to include that portion of the State, where the greatest complaint arose from the keeping of company stores. The responses were quite numerous, but many were not as specific in their answers as the importance of the subject demanded. The letter alluded to, contained the following interrogatories: "Do the company by whom you are employed keep a store? If so, are you required to take any portion of your wages in store goods? If so, how do prices compare with other stores in your locality? Does the company issue scrip, printed checks, or store orders? and if so, can you furnish specimens?"

The following are samples of checks used by coal companies in Fayette county:


No. . . . McClure Station, Pa., ... 18 .
PAINTER MINE STORE,
Not Transferable.
$1
Let . . . . . have merchandise to the amount not punched.
Good when signed by S. B. WHITE,
$ . . . . . .


GOOD FOR ALL AMOUNT UNPUNCHED.
$1
PAYABLE ON DEMAND.
In Merchandise, at the store of
Not Transferable.
H. C. FRICK & CO., Valley Mines, Pa.
Date, ... 80.
To, ...
No . . . . . For us of, ...

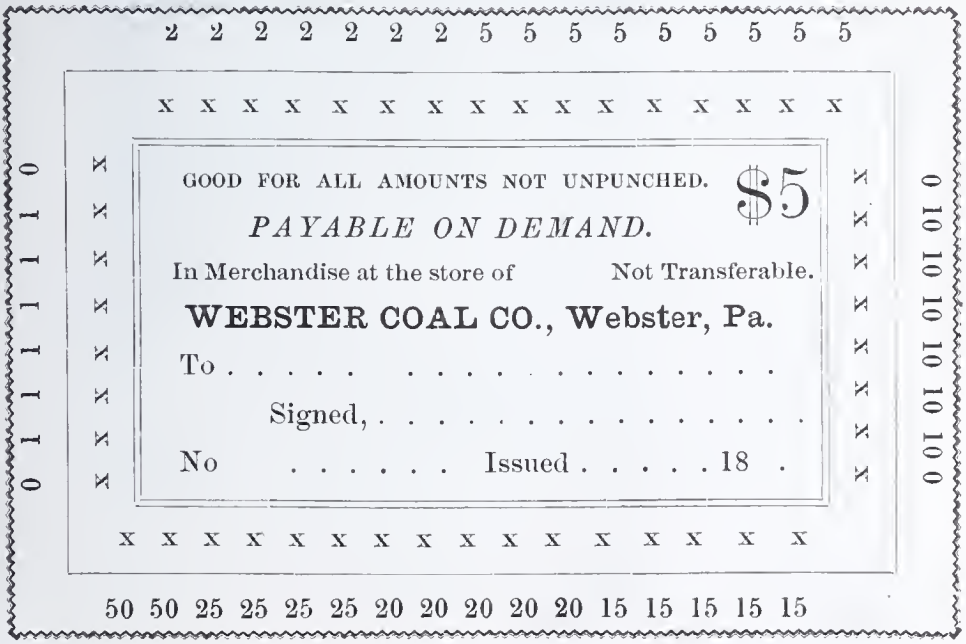
A correspondent writing from the locality where they are issued, says: "The scrip is marked '*not transferable*,' yet they use it the same as money here, the parties taking it, however, instead of money, do so at a shave of from thirty to forty per cent. Anybody can purchase with them the same as the party to whom they are issued, and I see them used here in hotels, saloons, eating-houses, &c., every week." The same correspondent says, as to prices: "They average from fifteen to twenty-five per cent. over individual firms. H. C. Frick & Co. are selling flour now, (February,) at $9 60

per barrel, while individual firms are selling the same brand at $8 per barrel." As being compelled to deal, he writes that "they don't exactly tell them *now* that they must do so, but they might as well, as the men know that if they do not take from $20 to $25 per month out of the store they will be invited to take out their tools, with the admonition that if they persisted in dealing in other stores they could go to the proprietors of said stores for work."

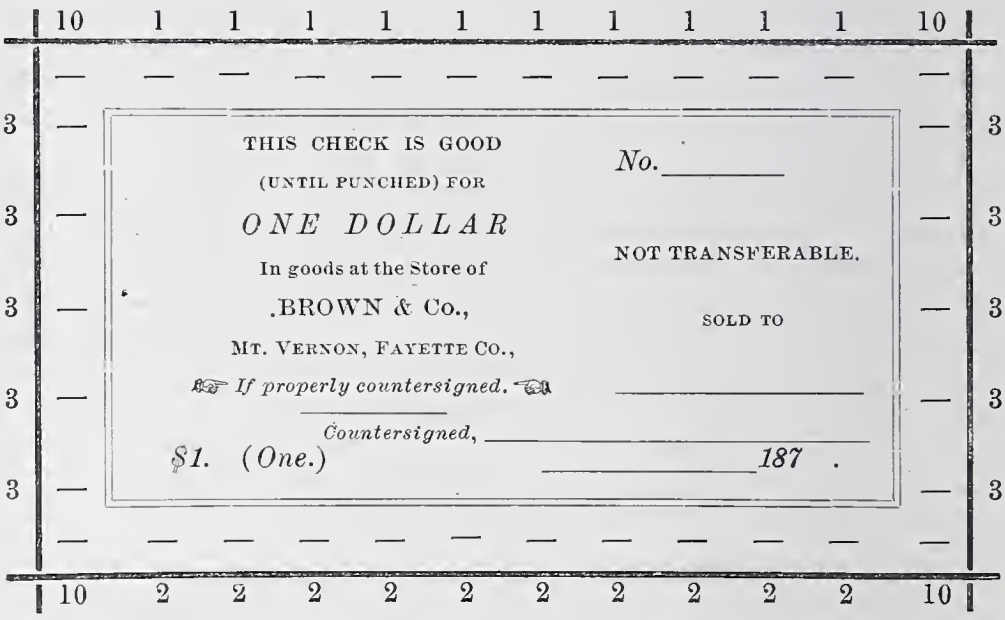
A correspondent from Webster, Westmoreland county, states: "That they are not compelled directly to take goods from the company's store, but indirectly they are, with a vengeance, or seek work elsewhere." They do not issue scrip of any kind, he remarks, but use pass-books, and an employé can get such goods as they have to the full extent of his earnings, and no more. The following is a comparison of prices between company stores and other stores in the neighborhood:

COMPANY STORES.		OTHER STORES.	
Flour, extra, per sack,	$2 10	Flour, best extra, per sack,	$1 90
Lard per pound,	12½	Lard per pound,	12½
Sugar per pound,	12½	Sugar per pound,	07
Cheese per pound,	18	Cheese per pound,	15
Lard oil No. 2 per gallon,	90	Lard oil, winter strained, per gallon,	80
Powder, (double ff,) per pound,	16¾	Powder, (double ff,) per pound,	14
N. O. molasses per gallon,	80	N. O. molasses per gallon,	65
S. C. hams per pound,	15	S. C. hams per pound,	10
Bacon or side meat per pound,	13	Bacon or side meat,	09
Raisins per pound,	12½	Raisins, (same kind,)	09
Vinegar per gallon,	40	Vinegar per gallon,	30
Coffee per pound,	25	Coffee, (same kind,) per pound,	23
Shoes, (ladies,) per pair,	2 00	Shoes, (ladies,) per pair,	1 25

The following scrip is issued to the employés of the Webster coal company Westmoreland county:


2 2 2 2 2 2 2 5 5 5 5 5 5 5 5 5
X X X X X X X X X X X X X X X X
GOOD FOR ALL AMOUNTS NOT UNPUNCHED.
$5
PAYABLE ON DEMAND.
In Merchandise at the store of
Not Transferable.
WEBSTER COAL CO., Webster, Pa.
To . . . . . .
Signed, ...
No . . . . . Issued . . . . . 18 .
0 1 1 1 1 1 1 1 1 0
0 10 10 10 10 10 10 0
50 50 25 25 25 25 20 20 20 20 20 15 15 15 15 15

The following is a sample of check used by Brown & Co., Mt. Vernon, Fayette county:



The Dunbar Furnace Company, in Fayette county, issue orders upon J. M. Hustead, store-keeper. The orders vary in amount, as required by the employé. An order is given, say for five dollars, and the holder thereof purchases at one time goods amounting to, say four dollars' worth. He is then furnished with a check for the balance, of the following description:

DUNBAR FURNACE STORE.

*GOOD FOR*_____

in merchandise at my Store.

J. M. HUSTEAD.

$1.

Per_____

5	40	75	110	145	180	215	250	285	320	355	390	425	460	495
10	45	80	115	150	185	220	255	290	325	360	395	430	465	**500**
15	50	85	120	155	190	225	260	295	330	365	**400**	435	470	
20	55	90	125	160	195	230	265	**300**	335	370	405	440	475	
25	60	95	130	165	**200**	235	270	305	340	375	410	445	480	
30	65	**100**	135	170	205	240	275	310	345	380	415	450	485	
35	70	105	140	175	210	245	280	315	350	385	420	455	490	

The amount of goods purchased is punched, as per figure, leaving the balance good for future purchases.

The following is a copy of scrip issued by Hartley & Marshall, Banksville, Allegheny county, Pennsylvania:

From information received by the Bureau, the company does not compel their employés to accept pay in orders, but it is asserted that those who deal to the greatest extent, secures the best and most constant work. The miner receives a pass-book. Upon this pass-book is a number which corresponds with the number of the ticket, which he is known to send out with every car of coal he mines. The number of wagons mined is credited to the workman in the store, and when he desires scrip, he takes his book to the office, the scrip is charged thereon, and then he uses it to purchase his goods with. A miner, under the employ of this firm, asserts that the same goods can be bought for cash twenty-five per cent. cheaper in the city of Pittsburgh, three miles distant.

The following is a speeimen eopy of checks used by the Westerman Iron Company, Mercer eounty:

Kimberly, Carnes & Co. also issue eheeks upon their store, similar to the above. There seems to be no eompulsory process by which the workmen are obliged to aeeept the above eheeks, but it is optional with them to take them or not, as their necessities may require. A miner, writing from the Shenango valley, Mercer eounty, says: "There is only one eoal company, the Westerman Coal Company, that have any eonneetion with a store. They issue eheeks to their miners on the iron-works store, in Sharon, but it is optional whether they take them or not. When taken, the amount is deducted from their wages upon the regular pay-day."

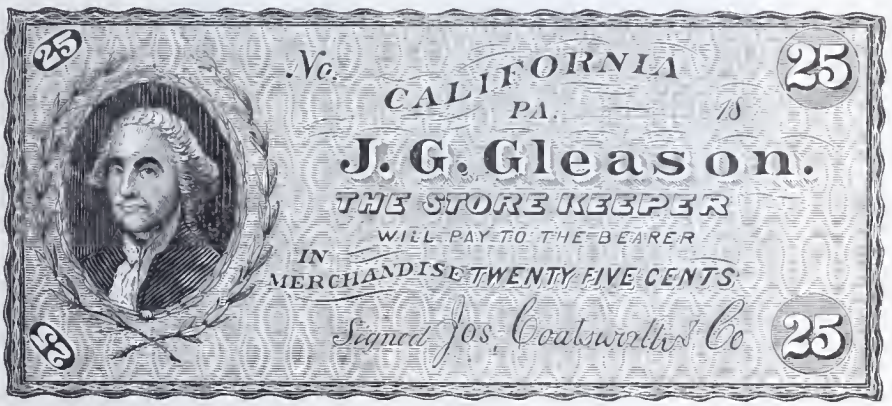
From the Beaver Valley quite a number of samples of eheeks and serip, used by the various eoal eompanies in that section, have been reeeived by the Bureau. Quite a number have written, stating that while all do not issue orders or scrip, yet nearly all have stores. The miner reeeives a pass-book, and every artiele taken from the store is eharged upon the book and deducted from his wages. There does not seem to be any speeial edict in force, compelling men to purehase, but, as in other localities, they are expeeted to deal there, to the exclusion of other plaees. One eorrespondent writes, that a relative of his was discharged, but was given employment again upon promising to "deal more in the store in the future than he had in the past."

A eorrespondent, who is a elergyman, writing from Washington county, says: "I am aequainted with seventeen operators in the Fourth Pool, and fifteen own stores, in whieh miners are expected to purehase their living, and that expectation assumes sueh form as makes a man understand that unless he does, he must look for work elsewhere. The differenee in the priee of goods in 'eompany stores' and others is at least twenty per eent. The miners eould profitably afford to submit to a reduction of fifteen per cent. in wages, if they *dare* purehase were they please. I will give you an illustration. I reeeived pay last fall from a miner in serip, on Morgan & Dixon,

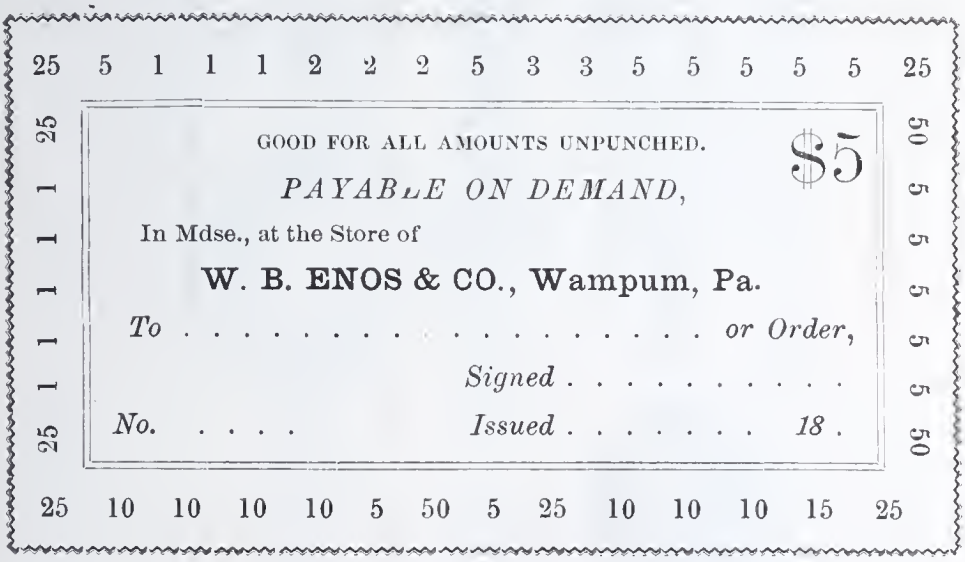
I purchased from them the following articles, with price annexed, also the price at Messrs. Abell & Reeves, merchants, at Greenfield:

MORGAN & DIXON.		ABELL & REEVES.	
Four pounds of sugar, at $0 12½,	$0 50	Four pounds of sugar, at $0 08½,	$0 34
One quarter pound of tea, at $1 00,	25	One quarter pound of tea, at $0 60,	15
One half gallon N. O. molasses, at $0 70,	35	One half gallon of molasses, at $0 45,	23
Two yards of muslin, at $0 8½,	17	Two yards of muslin, at $0 06½,	13
Total,	$1 27	Total,	$0 85

The same correspondent sends us the following specimen of scrip issued by Coatesworth & Co., adding, "that it passes for money all around, that is at a discount:"



The following is a fac-simile of checks used at Wampum, Lawrence county, Pennsylvania:


25 5 1 1 1 2 2 2 5 3 3 5 5 5 5 5 25
25 1 1 1 1 1 25
GOOD FOR ALL AMOUNTS UNPUNCHED.
$5
PAYABLE ON DEMAND,
In Mdse., at the Store of
W. B. ENOS & CO., Wampum, Pa.
To . . . . . or Order,
Signed . . . . . .
No. . . . . Issued . . . . . 18 .
50 5 5 5 5 5 5 5 50
25 10 10 10 10 5 50 5 25 10 10 10 15 25

The above check is issued in denominations of from $1 00 to $5 00 each, printed on different colored cards.

A correspondent from Hilliards, Butler county, writes the Bureau, that at the coal works at which he is employed, that they have discontinued the use of checks, but give their account in the store, where they are expected to deal.

The following is specimen copies of scrip issued by Scott & Crawford, Beaver county. L. S. Hoyt, superintendent:

A correspondent at Raymilton, Venango county, writes "that at the coal works there they keep a store, but do not compel the men to deal in it, they desire, however, that the men patronize them; and as goods were high, and work irregular, very many lived entirely from the store, having no money to go elsewhere." Illustrating the difference in prices, he gives the following items:

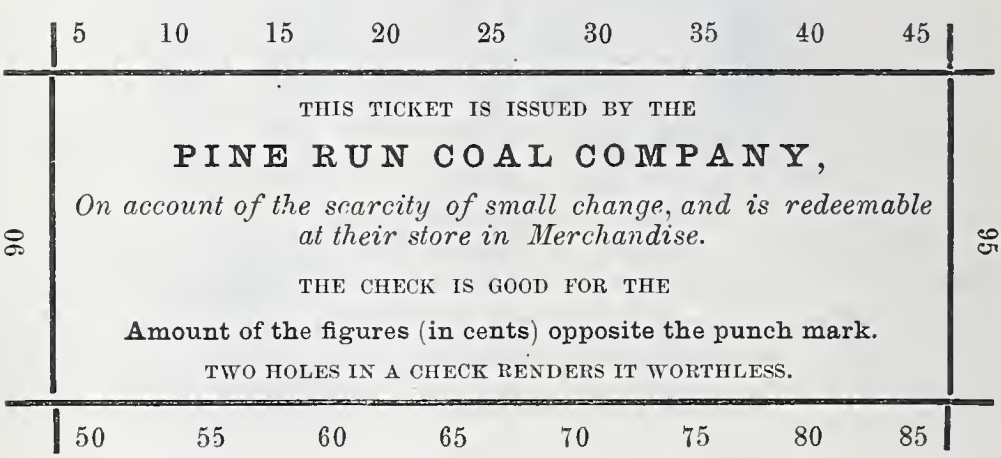
COMPANY STORE.		OTHER STORES.	
Flour per sack, (49 pounds,)	$1 95	Flour,	$1 75
Coffee per pound,	25	Coffee,	20
Refined oil per gallon,	20	Refined oil,	10
Sugar per pound,	12	Sugar,	10¼
Half dozen dinner plates, (common,)	1 25	Plates,	50
Half dozen table knives and forks,	1 40	Knives and forks,	1 00
Total,	$5 17	Total,	$3 65¼

He states furthermore that the company deducts the store account, house rent, blacksmithing, and doctor's bill, from the amount of wages due, and on pay-day gives him the balance in cash.

A miner in the employ of a coal company in Clarion county writes "that the first month he worked he bought only eight or ten dollar's worth of goods out of the company store. The first of the following month he was accosted by the superintendent, and informed that he was not dealing sufficiently in their store; that if he expected to continue in their employ he must purchase his goods at their counter, or otherwise he might look for work from those with whom he dealt." As to prices, he states "that a comparison with other stores upon the whole is not to be greatly complained of, although, in the main, they are higher, for instance: Lard oil, $1 00 per gallon; other stores, 75 cents. Ham, 13 cents per pound; other stores, 11 cents. Butter, 25 cents per pound; other stores, 20, etc."

Stephenson & Mitchell operate a coal works in Clarion county. They keep a store, and issue checks similar to those issued by the Westerman Iron Company. There is no compulsory process in vogue requiring the miners to buy in the store, but like other places where similar stores exist the miners say they are expected to deal there to the exclusion of other stores upon the theory that they should be preferred, from the fact that they furnish employment.

Mr. Stephenson was formerly connected with the Mahoning Coal Company's works, (now abandoned,) where the following check was given as change:


5 10 15 20 25 30 35 40 45
THIS TICKET IS ISSUED BY THE
PINE RUN COAL COMPANY,
On account of the scarcity of small change, and is redeemable at their store in Merchandise.
THE CHECK IS GOOD FOR THE
Amount of the figures (in cents) opposite the punch mark.
TWO HOLES IN A CHECK RENDERS IT WORTHLESS.
90
95
50 55 60 65 70 75 80 85

No. . . .

PINE RUN COAL COMPANY.

Good only when countersigned by Jas. B. Stephenson.

Counter signature, ...

. . . . . *Sup't.*

These checks are now given out by Stephenson and Mitchell, upon pay-day, for all sums less than ninety-five cents. If a fractional part of a dollar coming to the miner is ninety-eight cents, they receive one dollar cash; if ninety-seven cents, they receive a ninety-five cent check as above. Stores of similar character established by coal and mining companies, exist at numerous other places along the line of the Allegheny Valley, and Low Grade railroads, some of whom issue scrip, while others use pass-books.

The foregoing is a copy of scrip issued by Sandy Lick Coal Company, upon William Sharpe & Co., of Dubois, Pa. Mr. Sharpe being a partner. The same scrip is also used and given to the miners at the Bostonia coal works, Armstrong county.

A miner in the employ of the Philadelphia and Reading Coal and Iron Company, Schuylkill county, writes "that they do not issue scrip nor store orders to the miners, neither will they collect store bills for any claims unless compelled to by writ of attachment." Another miner writing from William Penn, near Shenandoah, says: "There is a store here owned by J. H. Bechtel, who lives in Philadelphia, but has officials employed to run the store. The proprietor comes up once a month, immediately after pay-day, as most of the money is kept in the office of the colliery, that is indebted to the store." He further says: "That about two years ago the most of the men were obliged to sign an agreement to permit the store-keeper to collect all due him from the office of the colliery," but does not say that the same agreement exists at the present time. He further adds: "I was told once that I did not deal much in the store, but my money

never was kept for what things I received in the store." Another correspondent, a miner, writing from Loss Creek, Schuylkill county, says: "There is no company store here, but there is one kept by private individuals, and the company deducts the store bill from the wages of the men, paying the balance in cash regularly upon the first Saturday after the tenth of each month. The men can spend their money where they please, and to the best advantage." Another correspondent writing from the same county, referring to coal works at Raven Run, says: "The company with whom I am employed keep a store. I have not received any notice yet to deal in the same, owing, no doubt, to the fact that I have, ever since working for this company, taken considerable out of their store each month, nevertheless, I know a great many who have been notified very recently to deal in their store or quit their work and houses. Prices in their store are from fifteen to twenty-five per cent. higher than in other stores, and very often inferior goods. The company issue no scrip. They issue printed checks or statements a few days before pay-day, but are not transferable. Store orders are issued on their own store to such of their employés whose wages are small, and who are apt to overdraw their accounts. To all others pass-books are given. They keep a sharp look out, however, that you get no more goods than there are wages due you."

From a correspondent in Plymouth, Luzerne county, the following has been received at the Bureau:

"The following is a copy of printed matter on inside page of pass-book, which is in all pass-books held by traders in employ of this one particular company, viz: C. Parrish & Co., who largely represent the heaviest mining interest in this vicinity. My estimate of ratio of increased per cent. paid by employés to company stores, is ascertained from prices marked, and charged in the same; this pass-book being used to first of present month, viz: January, 1880, Mine No. 16, Customer No. . . . ."

(COPY.)

"This pass-book must always be presented when goods are ordered, and the purchases entered therein at the time, and goods so purchased are to be paid for by the purchasers' employers, out of the amount due him for work and labor; the receipt of H. H. Ashley & Co., to be a full discharge for so much indebtedness of the employers to the employé who hold this book."

"*Always bring your book.*"

"No orders will be taken for goods on, or during the first month to exceed amount of credit due from the last month, or at any time to exceed credit or earnings."

"On receipt of book embracing above conditions, a paper is signed by employé, and held by the firm or firms, giving them power of attorney to receipt to employers for all moneys due them, and the balance, if any, the employé gets himself from the company, on presentation of his due-bill, above what is retained for rent, powder, and mine supplies, store, &c."

With reference to comparison of prices between individual and company stores in same locality, the same correspondent writes: "I place the average at not less than ten per cent. positive, with a strong probability it may

reach fifteen per cent. I do not wish to exaggerate, hence, make figures ten per cent., while nine out of ten professional merchants would not estimate less than fifteen up to twenty per cent. One reason why an exact average cannot be reached on one general account is, that dry-goods, boots and shoes, clothing, &c., vary so in quality, that no fixed comparison can be made to reach difference in price, and it is on this class of goods, that general opinion of customers is based, running high in extra percentage, and which business men claim, reach a general average of fifteen to twenty per cent. In other cases, where large corporations are operating in this valley, who recognize no truck system, viz: Delaware, Lackawanna and Western, and Delaware and Hudson, agents employed as superintendents, or holding lucrative positions, start private enterprises, conducted by brothers, sons, or other relatives, and hence use influence of position with employés to control the trade of a large, and important part of communities, while they themselves are virtually the owners. I could cite cases of this kind existing, which is of no import here, only merely that they do not, as a rule, exact as much extra per cent. as in the other case, the relation being more voluntary in character."

At Kingston, Luzerne county, are located the mines of the Kingston Coal Company, limited. In the town of Kingston there is a store under the firm name of Edwards & Co., the individual members of said firm being Thomas Beaver, of Danville, and Daniel Edwards, of Kingston. Both are said to be heavy stockholders of the Kingston Coal Company. Mr. Edwards is also superintendent of the company. A workman in the employ of the company writes the bureau "that they are expected to deal in the store, without exception; if they do not, they are not immediately discharged, but given work by which they can scarcely keep soul and body together. The miner or employé served in this manner understands the trick, and he remedies it by either trading in the store or seeks employment elsewhere."

The same company, the Bureau is informed, have mines at Plymouth, three miles from Kingston. The employés of this mine, so says our correspondent, "are expected to deal at the Edwards & Co.'s store also. If convenient, the store team will deliver the goods; if otherwise, the purchasers convey them home as best they can." It is estimated that in moderate good times the sale of goods at the above store averages $8,000 per month.

A comparison of prices is given for December, 1879, by the same writer, the prices accredited to other stores being based upon a credit of thirty days:

Edwards & Co.'s Store.		Other Stores.	
Flour per barrel,	$8 00	Flour per barrel,	$7 75
Chop,	1 50	Chop,	1 25
Corn meal,	1 50	Corn meal,	1 25
Butter per pound,	35	Butter per pound,	30
Bacon per pound,	10	Bacon per pound,	7 cents to 8

Ham per pound,	$0 13	Ham per pound,	11 cents to $0 12
Lard per pound,	13	Lard per pound,	12
Cheese per pound,	20	Cheese per pound,	16 cents to 18
Teas per pound,	60 cents to 1 00	Teas per pound,	25 cents to 75
Coffees per pound,	28 cents to 37	Coffees per pound,	25 cents to 30
G sugar per pound,	13	G sugar per pound,	11
A sugar per pound,	12	A sugar per pound,	10
C sugar per pound,	11	C sugar per pound,	9

Since receiving the foregoing, an opportunity being afforded one of the attachés of the Bureau to visit his home in Luzerne county, he was authorized to make personal inquiry upon the subject among employers, employés, and others. As a result of said inquiry, we append the following interviews:

ASHLEY & CO., PLYMOUTH, PA.

Q. Mr. Ashley, you are aware that there is considerable agitation against the company store system?

A. Yes, sir.

Q. Are you willing to answer me a few questions regarding your store?

A. Yes, sir. Any information that I can give I will do so cheerfully.

Q. Do you operate or own any mines?

A. No, sir.

Q. Is any of the firm connected with the mines, directly or indirectly?

A. I do not know whether Mr. Parrish, (my partner,) is connected with Charles Parrish & Co. or not. I cannot say.

Q. Who deals principally with you?

A. The employés of the W. B. Coal and Iron Company, operated by C. Parrish & Co., their lessees.

Q. Are there any means used directly or indirectly to compel the employés to deal with you?

A. Not any. Every man can choose his place of dealing without any notice or complaint upon our part or upon the part of the superintendent or bosses. They deal with us, and so far seem satisfied. We hear no complaint from our customers.

Q. Are miners allowed any preferences about their work that deal with the company store over those who do not?

A. No, sir. We have little knowledge of the working of the mines, as they are in no way connected with the store.

Q. Do the miners pay their own accounts to you?

A. No, sir. All bills against the miners and mine employés, in general, is handed into the office of the lessees of W. B. C. & I. Co.

Q. Does C. Parrish & Co. charge anything for collecting this money?

A. Yes, sir.

Q. What percentage is allowed them?

A. I do not think that a fair question, and I don't really care to tell that.

Q. This percentage then comes off the men?

A. Well, you might say so. I suppose it does.

Q. What percentage of the married employés deal with you?

A. Well, there lies the time book, you can see for yourself; but wait, I will count it up, so we will be sure. It foots up about two thirds of them.

Q. That book gives the amount of money due each man, and the amount of his dealing with you, does it not?

A. Yes, sir.

Q. How do you know the amount of each man's earnings?

A. It is reported to us daily.

Q. Does that book belong to the mine company or the store company?

A. It belongs to the store, and is a duplicate of the mine company's book.

Q. Do you allow the employés of the mine company to deal to any extent regardless of his earnings?

A. No. We allow no man goods beyond his earnings. He is entitled to trade to the amount coming to him to date. We think that it is bad business to allow a person to deal beyond the extent of his earnings, and we don't care to leave goods go out without some evidence of our getting our pay for them.

Q. In case a man desired goods as a necessity, and had not earned sufficient to pay for them at the time, would you refuse them?

A. No, sir. We often—when there is a prospect of working steady for a few months—allow responsible parties, who desire to buy bedding, &c., two and three months to pay for them.

Q. Do you, in times of suspension or stoppage of the mines, allow any of the employés credit?

A. Only to a limited extent, according to the character of the man.

Q. I suppose you would credit any man who has property, would you not?

A. Not always; but often men of character have property. Should we allow credit to men in general, many would, on the starting up of the works, move to other localities, and in that way we would lose a great deal, as such men as a general thing never pay.

Q. You then allow all employés of this mine company to deal with you to the amount of their daily earnings?

A. No, sir; only those that enter into a regular contract with us. They sign a printed contract, and in connection with that we sign another agreeing to accept them and allow them trade.

Q. Will you give me one of those agreements?

A. Yes, sir.

Q. Are men compelled to sign the contracts?

A. No, sir; but we will allow no employé of the mines to deal with us that does not sign it. If he does not sign it, he must deal elsewhere, unless he deals with us for cash. There is no compulsion.

Q. If any of the mine employés deal elsewhere, are their wages paid in cash at the end of the month?

A. Yes, sir; it is all in cash, whatever is coming to them. I would here state, that the most of the men prefer dealing with us.

Q. Do you keep your store open during long strikes or suspensions?

A. Yes, sir; but on the cash principal.

Q. How do your prices compare with cash or individual stores?

A. Well, some things we are a little higher, but we have the best of every thing, and we give good weight and measure, but we are lower in price on some goods than the cash stores. I would like you to talk to some of our customers. I would not like to name any one, but like you to go amongst any of them, and see for yourself. I would also like you to see Mr. Scott, my book-keeper.

INTERVIEW WITH MR. SCOTT.

Q. Mr. Scott, can you give me any information as regards the benefits or abuses of the company store system?

A. Well, sir, my experience is not very great with these institutions, as I have only been here for about four years; yet, in that time, I have seen much. We have a queer people to deal with. In the first place, we have to furnish them with the best of everything, and company stores always give the best of weight and measure. Mr. Ashley will not buy any goods that are not the best. In case of sickness or death, we often advance money to our distressed people, and then when the time of settlement arrives, we are upbraided for these favors, they claiming, had we not advanced them the money, that they would have so much more coming to them. They forget that their expenses were to be paid during their troubles. I merely mention this, to show you how thoughtless our people are. I am very positive that there is no compulsion in vogue, whereby any of the company's employés are compelled to deal in the store. They seem to prefer company stores to others, from the fact, that everything they get is good, or it can be returned. And as to men being forced to deal with us through intimidation, or by giving bad places in the mines, whereby they might not earn a subsistence, is not so; for I can prove to you that there are a great many men who earn the best wages paid in the mines, and have the best paying bréasts, who do not deal a dollar in the company store. Ashley & Co., charge a little more for some things, and less for others. They pay Parrish & Co., four per cent. for all collections. The bills against the men are made out, and sent to Parrish & Co's. office, and are deducted from the men's pay, and remitted to Ashley & Co., less the commission I just stated of the four per cent. The balance due the men is paid once a month, in cash. To cash customers, and outsiders who do not work around the mines, but deal with us by the month, and pay their own bills, we allow a discount of five per cent., so we only offer an inducement of one per cent. over the prices charged the miners, as we allow four per cent. for collection.

The following is a copy of the agreement alluded to by Mr. Ashley:

Messrs. H. H. Ashley & Company, No._____

Gentlemen:

I wish to purchase goods from your store, from time to time, on credit. I am at present in the employ of the lessee and contractor, under the receivers of the Lehigh and Wilkes-Barre Coal Company, and agree that you may collect the price of all goods which you shall furnish me or my family, or which you have already furnished from the said company, their receivers, lessee, or contractor, or any other party employing me, out of any amounts that they now owe me, or may hereafter be indebted to me, and that your receipt to my employers shall be a full discharge of such indebtedness for the amounts thus collected.

Witness, ...

. . . . . 188 .

We accept the proposition of . . . . . as above made, and agree to give him credit on the terms and conditions therein proposed, to such amounts, and for so long as we may deem expedient.

Witness, ...

. . . . . 188 .

Interview with Mr. Gaskins, Manager of Edwards & Co.'s Store, Kingston, Luzerne County.

Q. Does Messrs. Edwards & Co. own this store?

A. Yes, sir.

Q. Do they also operate or own mines?

A. They own some coal lands, and lease some, also operate the same.

Q. Do the employés deal in this store?

A. Most of them do.

Q. Is there any compulsion, either in a direct or indirect way, used to make them deal with you?

A. None, whatever.

Q. Is there any favor shown to those who deal with you, over those who do not deal with you?

A. No, sir, there is not. We endeavor to employ capable men, and when we meet a good, honest man, and he is competent, we generally try to keep him, and of course we favor him when there is an opportunity, and sometimes he does get a position that he makes more than others. But we have men who earn the best wages we pay, who do not deal a dollar in the store.

Q. What is the character of your employés, generally?

A. Our men are mostly Welsh, and we have the most quiet pay-day in the valley. We very seldom see a drunken man at such times.

Q. How many men does this firm employ?

A. Six or seven hundred men and boys. Many of the men are married.

Q. Do all the married men deal with you?

A. Most of them do—some deal a little, some more. We have men who buy nothing but boots and tobacco. We also have men who deal in Pittston, for we have seen the wagons deliver the goods.

Q. Are men under your employ mistreated, or placed in such positions that they can hardly earn a subsistence, for not dealing at your store?

A. Now that is a question that your department would ascertain with more correctness, by placing a man in the mines, and observing himself. I can assert, positively, that no distinction is made between one man and another, unless under a question of competency. We will give our capable men the best places. Sometimes we have men who think they are fully capable, when they are not, and, of course, expect good places, and when they do not receive them, they complain.

Q. Are your prices in keeping with individual cash stores?

A. We try to have our prices uniform. Cash stores generally charge more for some articles than others, but we endeavor to have our profits of a uniform rate. But our customers must have the best of everything, and the consequence is we have to pay higher, and charge higher for such goods. We have no goods of a poor character—everything is the best.

Q. Do you deal by a pass-book?

A. Not altogether.

Q. What other system do you have?

A. We have an order system. Every man's time is handed in the store every morning at nine o'clock. And when any of our men want anything in the store, they apply to the book-keeper, and he issues an order for any amount that they may want, providing that the amount does not exceed the sum due him. Then, should he not deal the entire order, we write across the face of the order the amount yet due on it, so that employé knows exactly how much is coming to him. Many men, who are not good in figures, prefer this system.

Q. Do you give orders on other stores?

A. No, sir; only in one exception. We give orders on Evans & Brother's drug store. We do this to accommodate our men, and we pay these orders to Evans & Brother, dollar for dollar.

Q. Do you pay in cash all balances due your employés, after the store bills are deducted?

A. Yes, sir; once a month. We have men in our mines, who with their sons, earn from $200 to $250 a month. These men run a store bill of about $75 to $80 per month. The balance is all in cash.

Q. Do you give credit to men beyond their earnings?

A. No, sir. We allow no employé to trade out more than he earns. We know each day how much is coming to every man. He can have goods only to that amount.

Q. In case the works shut down or suspend, do you allow your employés to trade on credit?

A. No, sir. We close down all accounts. We sell no goods that we see no way to get our pay for. We have carried some men over, and they would change their base of work when times would revive, and we would then lose by it. So we shut down on such work, and in such times we deal only in cash, or close up.

Q. In case a man gets in trouble, would you turn him from your store if he was behind, simply because on the eve of his misfortune he happened to draw all that was coming to him?

A. No, sir. We often help our men who have become sick or disabled, or sickness in the family. We do this where we can with safety.

Q. Does the Danville Company, Beaver & Waterman, have anything to do with Edwards & Co.?

A. It is about the same thing. Any time that we can give you any information, or desire to investigate our dealings with our men, the prices of goods, and their comparative qualities, we will cheerfully do all we can for you. But I advise you to see some of our men, and get their story. I think they would throw more light on the subject, and would be of more benefit to you than our story.

The following is a copy of an order issued by Edwards & Co., alluded to in forgoing interview:

NOT TRANSFERABLE.

No. . . . KINGSTON, PA., ... *187*

EDWARDS & CO.

Pay to . . . . . *in Merchandise*

. . . . . 100 *Dollars.*

$ . . . . . *Clerk.*

INTERVIEW WITH THOMAS HERBERT, WILLIAM X. LEWIS, JOHN H. HERB, AND THOMAS D. RICHARDS, EMPLOYEES OF C. PARRISH & CO., PLYMOUTH, PA.

Q. Do you men work for C. P. & Co?

A. We do.

Q. Do you deal with Ashley & Co?

A. We do.

Q. Is there any compulsory process in vogue to make you deal with them?

A. There is not. We can deal with them or we can deal where we please.

Q. Are you paid in cash, if you do not deal any in the store?

A. We are; and we can go where we please to buy, and many do.

Q. Do you have to pay higher for goods at Ashley & Co. than at the cash store?

A. Yes, for some things we pay higher, and others not so high.

Q. Well, why is it; if you are not compelled to deal in the company store that you do, when you know you pay more money for goods than you would at the cash stores?

A. Well, we get the best weights and measures, and anything we get we can depend on it to be good.

Q. In your estimation, are the company stores a good or bad institution?

A. Well, they are both good and bad. Some men hold out, that if the company store did not exist that we would get our pay more regular. That sometimes they hold the pay back for the purpose of getting us to deal in the store, through necessity. Then again, if a poor man should come in a locality and get work and have no money, and he works a day he can go to the company store and get something to eat, to the amount he has earned. He could not do this at all times in a cash store. In such cases the company stores are a good thing. But the company stores are not so exorbitant as they used to be, they are more upon an equality with the cash stores.

Q. Can you give me the name of any man that has been ill-treated in the mines, or has been disfavored, or any disposition shown in any way to compel him to deal in a company store?

A. We can not. We do not know of any.

In Tioga county, there are three large company stores, situated at Antrim, Fall Brook, and Arnot. A miner writing from Morris Run states, "that Mr. T. B. Anderson, is the store-keeper, upon whom orders are issued by the Morris Run Coal Mining Company, for goods, the amount thereof being deducted from the wages of the miner." He says they are not compelled to deal in the store. Two miners from Arnot says there is no compulsion, and that prices compare favorably with other localities. Three from Fall Brook says that orders are issued upon the store, and agree that some goods "are higher," and "others at about usual rates." Two reports were received from Antrim, one stating that they are "not compelled to trade in the store, and that prices are reasonable, and fully beneficial to trade in." The other states, that "if any effort is made by the miners to purchase elsewhere, that a discharge is sure to follow."

The following description of the company store at Antrim, is taken from the *Blossburg Industrial Register:*

"In the year 1873, the company commenced the erection of one of the finest stores in northern Pennsylvania. We will not attempt an elaborate description, but will briefly add that is four stories high, containing a sales-room 25 by 80, lighted by bay windows, and glass front, with four store-rooms, furnace, coal cellars, tailor shop, clothing-room, shoemaker shop, sleeping-rooms for clerks, office of book-keeper, &c. It is supplied with all the necessary registers and elevators, and, upon the whole, is a model of convenience and taste. The office of the pay-master and manager, is a fine

edifice, complete in every respect, supplied with burglar and fire-proof vaults for the preservation of valuable books and papers. The town of Antrim, contains now two hundred and twenty-five dwellings, with a population of two thousand inhabitants. There are about three hundred men employed in the various departments. Like Fall Brook, the work and business is divided into departments, all under the supervision of a manager, who reports to the general manager, A. Hardt."

At the foregoing works they issue printed orders, as follows:

No. . . . . . *$2.*

FALL BROOK COAL COMPANY, Antrim, Pa.,

Will please pay . . . . . .

. . . . . *dollars in Merchandise,*

and charge the same to the account of

. . . . . *Paymaster.*

ANTRIM, ... 18 . . .

Should the holder of the above order, purchase at one time, but one dollar's worth, he receives in shape of change, the following:

FALL BROOK COAL COMPANY'S STORE.

$1.

ANTRIM, PA., ... 18 . . ,

Good for . . . . . *in Merchandise.*

. . . . . *Clerk.*

There is no other store nearer than Wellsboro', which is ten miles distant. A comparison of prices is given by a resident of Antrim, as follows:

WELLSBORO'.		ANTRIM.	
Sugar, standard A, per pound, ...	$ 10	Sugar, standard A, ...	$ 12½
Sugar, standard C, per pound, ...	9	Sugar, standard C, ...	11
Sugar, cut loaf, per pound, ...	12	Sugar, cut loaf, ...	14
Sugar, powdered, per pound, ...	12	Sugar, powdered, ...	14
Sugar, granulated, per pound, ...	11	Sugar, granulated, ...	13
Teas, gunpowder, per pound, ...	50	Teas, gunpowder, ...	90
Teas, young hyson, per pound, . . .	40	Teas, young hyson, ...	80
Teas, Japan, per pound, ...	40	Teas, Japan, ...	60
Teas, Japan, per pound, ...	30	Teas, Japan, ...	90
Teas, Oolong, per pound, ...	40	Teas, Oolong, ...	80
Teas, English breakfast, per pound, .	40	Teas, English breakfast	90
Coffees, Rio choice, (green,) per pound	20	Coffee, green, Rio choice, ...	30

WELLSBORO'.		ANTRIM.	
Coffees, Java, choice, green, per pound	28	Coffee, green, Java, choice,	44
Coffees, Rio, good, roasted, per pound,	20	Coffee, roasted, Rio, good,	30
Coffees, Rio, choice, roasted, per pound	25	Coffee, Rio, choice. (Don't keep.)	
Coffees, Java, choice, roasted, per pound	35	Coffee, Java, choice. (Don't keep.)	
Syrups, extra fine drips,	50	Syrups, extra fine drips,	80
Syrups, best white drips,	70	Syrups, B. fine drips. (Don't keep.)	
Syrups, New Orleans extra,	50	Syrups, New Orleans extra,	70
Vinegar, (cider,) gallon,	20	Vinegar, cider,	32
Kerosene, gallon,	12	Kerosene,	20
Brooms,	15	Brooms,	30
Brooms,	20	Brooms,	35
Baking powder,	35	Baking powder,	35
Cream tartar,	40	Cream tartar,	60
Crackers,	8	Crackers,	10
Extract of lemon,	18	Extract of lemon,	20
Raisins,	12	Raisins,	18
Cinnamon, ground,	50	Cinnamon, ground,	80
Flour, XXX,	7 50	Flour, XXX,	8 50
Mustard,	50	Mustard,	80
Ginger,	24	Ginger,	40
Codfish,	04	Codfish,	09
Wooden pails,	15	Wooden pails,	30
Papper pails,	40	Papper,	75

In addition to replies received to general letter, heretofore alluded to, upon this subject, the blanks sent to all employés contained thirty-five questions, among them the following:

11th. Have your employers a store connected with their establishment, in which employés are expected to trade?

12th. If so, how will prices compare with those charged at other stores?

13th. Does your employer pay any portion of wages in orders on stores in your locality?

Whole number of returns,	476
Number reporting company stores,	156
Number reporting no company stores,	290
Number reporting compulsion,	16
Number reporting no compulsion,	31
Number reporting orders on other stores,	96
Number reporting no orders on other stores,	328
Number not answering the store question,	30
Number not answering the order question,	52

The comparison of prices, as given n the above returns, will average $16\frac{2}{3}$ per cent. higher in company stores than in others.

The specimen copies of scrip given in the foregoing pages, with extracts from the letters accompanying them, gives a fair idea of the operations of the "truck system" in this State. The specimens and extracts could be multiplied by many others, but sufficient has been given to show that its existence is more extensive than probably many had anticipated, while the "extracts" are fair indications, that if there be a remedy the wage orker

would hail it with delight. The comparisons given of prices as between company stores and others, show conclusively, that the employer adds largely to the profits accruing from the sale of his commodity, by the further sale to his workmen of store goods, while, at the same time, it tends to deprive the workmen from exercising unembarrassed the high privilege of disposing of his own hard earnings to the best possible advantage.

To say that workmen are compelled by any special edict, proclaimed in any special locality, by company or companies to deal in their stores, would probably be saying too much, and yet, that in very many places there is a moral compulsion, produced in various ways, admits of no doubt. The special inducements portrayed, (and there are inducements,) accompanied by persuasive arguments, that he who furnishes the labor, is entitled to the patronage of the laborer at the employer's store, admits of a moral compulsory process that none know so well as the employer or agent who advances them, and the workman who meekly listens, and submits to them. The one is the shrewd, selfish device of employer or agent, to add to productive profits; the other, is the meek submission of the employé, induced by family attachments, and the necessities that surround him. To say that companies who keep stores of this character, leave the workmen untrammeled to purchase where he pleases, and to the best advantage, is but mockery, and an insult to the intelligence of the thinking mechanics of our land, for they all know that they stand as impending obstructions to individual enterprise, and thus rob the masses for the special benefit of the few.

The question has arisen, can these stores be suppressed by law? We have already shown that all law in this particular in this country has been ineffectual. All attempts, too, in this State, to enact a law of a sweeping character has failed. Their failure can be ascribed to the impossibilities attempted. To declare it a penal offense, for a company or individual members thereof, to keep a store, and sell goods, even to employés, is contrary to the genius of our institutions, as it circumscribes the privileges of a designated number, to the exclusion of all others. To punish such storekeepers with fine and imprisonment, because, forsooth, they would demand a greater price for goods sold by them, than the same could be purchased from others, would lead to interminable confusion, and place the offender in a position unwarranted by justice or equity. The sale of a pound of cheese or butter at a higher figure than could be purchased elsewhere consigning men to prison, is a power too sweeping to be used by designing and heartless individuals, is providing a remedy more to be abhorred than the disease itself. We think, however, that law should compel the employer to pay his employé in the lawful money of the land; that the issuing of scrip should be prohibited, and that settlements in full should be made at least once a month. With this money earned as wages, the workman should be left free to purchase where he pleases, and to the best advantage, whether that be in a company or any other store. Such a

state of affairs, would give an impetus to individual enterprises in many localities, where now they are dormant; would instil new ideas of economy, frugality, and thrift into the minds of the workmen, while it would in no wise tend to diminish the productive profits of the employer. These advantages secured, the workmen would toil with a lighter heart, and more willing hand; his increased exertions enjoyed to its fullest fruition, and the days of the "truck system" in Pennsylvania would be numbered.

REPORTS

OF

MINE INSPECTORS.

ANTHRACITE.

For the purpose of obtaining a thorough and complete statistical report of the coal production of the State, blanks were prepared and forwarded to the mine inspectors throughout the anthracite region, requesting the names and characteristics of all the collieries in their respective districts, with the ventilation, number of employés, amount of coal mined, and days worked, etc., for the year ending December 31, 1879. Only one inspector (James Ryan, Shamokin District,) responded, and is given herewith.

NAMES OF COLLIERIES IN OPERATION IN THE MINING DISTRICT OF SHAMOKIN, DURING THE YEAR ENDING DECEMBER 1, 1879.

NUMBERS AND NAMES OF THE COLLIERIES.	LOCATION OF COLLIERIES	NAMES OF OPERATORS.	CLASS OF COLLIERIES.	COAL PRODUCED.			
				1876.	1877.	1878.	1879.
1. West Brookside,	Tower City,	Phila. and Reading Coal and Iron Company,	3 slopes and 1 tunnel level,	172,651.15	369,573.07	282,264.00	410,815.09
2. Mount Carmel shaft,	Alaska Station,	do. do. do.	2 shafts,	71,384.07	148,305.10	121,267.09	180,934.16
3. Trevorton or North Franklin Nos. 1 and 2,	Trevorton,	do. do. do.	1 slope and 3 drifts,	39,349.06	73,134.04	52,638.17	84,537.14
4. Bast,	Big Mine Run,	do. do. do.	2 slopes and 1 drift,	82,641.14	118,911.09	86,462.11	141,435.17
5. Locust Spring,	Locust Gap,	do. do. do.	1 slope,	22,699.11	72,623.10	43,094.05	65,770.02
6. Wadley slope,	Ashland,	do. do. do.	1 slope,			*	†
7. Locust Run,	do.	do. do. do.	1 slope and 1 tunnel level,	52,953.03	80,940.00	41,450.03	‡
8. Tunnel,	do.	do. do. do.	2 slopes,	76,439.19	100,735.03	66,296.09	71,913.11
9. Keystone,	Locust Dale,	do. do. do.	2 slopes,	32,001.06	80,000.00	56,720.16	27,604.09
10. Potts,	do.	do. do. do.	2 slopes,	39,067.05	103,806.15	81,515.14	88,493.04
11. Merriam,	Locust Summit,	do. do. do.	2 slopes,	115,326.11	136,073.10	85,500.14	64,345.19
12. Helfenstelne,	Helfenstelne,	do. do. do.	1 slope,	16,308.07	37,366.09	‡	‡
13. Preston, No. 1,	Girardville,	do. do. do.	1 drift,	17,525.09	37,718.02	5,260.06	§
14. Do. No. 2,	do.	do. do. do.	1 slope,	32,179.02	76,374.12	75,324.12	93,967.12
15. Do. No. 3,	do.	do. do. do.	2 slopes,		22,019.11	38,600.00	91,278.12
16. Do. No. 4,	do.	do. do. do.	1 tunnel level,	38.00		11.00	§
17. Burnside,	Burnside,	do. do. do.	2 slopes and 1 tunnel level,	60,500.00	60,637.15	2,685.10	56,463.01
18. Bear Valley,	Carbon Run or Bear Valley	do. do. do.	1 shaft and a tunnel level,	55,007.06	55,632.07	75,719.04	98,417.02
19. George Fales,	do. do.	do. do. do.	1 slope,	15,189.15	4,000.00	5,803.17	3,952.08
20. Big Mountain,	Big Mountain,	Patterson, Llewellyn & Co.,	6 drifts,	105,530.00	130,251.14	92,837.10	148,551.00
21. Diamond,	Little Mine Run,	A. Bancroft,	1 drift,	987.16		20.05	156.00
22. Vaughan,	Ashland,	David Vaughan & Co.,	1 drift,	1,482.00		1,532.00	3,838.00
23. Excelsior,	Excelsior,	C. W. Kingsley & Co.,	4 drifts,	37,933.01	45,295.05	72,310.14	67,195.10
24. Enterprise,	do.	Thomas Baumgardner,	2 slopes and 1 drift,	72,550.17	72,743.18	63,406.00	110,581.03
25. Greenback,	Greenback,	Henry J. Toudy,	4 drifts,	23,917.04		7,132.12	16,567.08
26. Franklin,	Shamokin,	C. M. Voght,	1 drift,	4,252.07	3,844.06	3,444.15	2,072.02
27. Henry Clay, No. 2,	do.	Phila. and Reading Coal and Iron Company,	1 slope,	83,374.14	72,637.11	§	
28. Locust Gap,	Locust Gap,	Graeber & Shepp,	2 slopes,	52,371.16	76,000.00	63,970.01	86,068.05
29. Monitor,	do.	George W. Johns & Brother,	3 slopes,	81,620.00	131,110.13	88,210.12	110,429.03
30. Reliance,		Phila. and Reading Coal and Iron Company,	2 slopes,	32,708.14	16,359.19	7,802.17	84,866.13
31. Henry Clay, No. 1,	Shamokin,	J. Langdon & Co.,	1 shaft and 1 drift,	§	8,531.13	96,998.01	137,188.07
32. Sterling,	Carbon Run,	William Kendrick & Co.,	1 slope,	20,394.12	103,044.01	54,085.14	76,545.14
33. Royal Oak,	Shamokin,	George Tillet & Son,	1 drift,	700.00	304.02	295.00	392.10
34. Ben Franklin,	Doutyville,	Douty & Baumgardner,	1 slope and 1 drift,	31,145.01	21,334.00	28,571.01	51,604.13
35. Short Mountain and Lykens Valley,	Wiconisco,	Short Mountain and Lykens Valley Coal Co.	2 slopes,	149,611.03		112,095.09	194,784.00
36. Big Lick,	Dayton,	do. do. do.	2 slopes,	1,482.05	52,001.12	§	
37. Summit Branch,	Williamstown,	Summit Branch Coal Company,	4 slopes,	239,768.04	263,674.02	257,239.12	259,889.10
38. Big Run Gap,	Big Run Gap,	James Fennel,	2 drifts,	3,000.00	2,008.05	1,798.00	2,703.10
39. North Side,	Lykens Valley,	Edward Miller,	1 drift,	2,677.00	2,080.12	‡	
40. Centralia,	Centralia,	G. M. Prevost,	2 slopes,	38,207.19	62,976.00	62,133.10	37,805.00

41. Hazel Dell,	Centralia,	George Troutman,	1 slope and 1 drift,	29,384.00	45,420.00	6,835.00	13,193.00
42. Lilly,	do.	do.	1 slope,			7,711.00	2,774.00
43. Stewartsville,	Mount Carmel,	William Monteilus,	2 slopes,	60,042.12	74,000.17	80,418.15	55,106.16
44. Luke Fidler,	Shamokin,	Mineral Railroad and Mining Company,	1 shaft and 1 drift,	100,554.11	119,576.15	103,961.16	114,654.06
45. Cameron,	do.	do. do.	3 slopes and 3 drifts,	178,662.16	168,047.00	160,194.02	161,403.19
46. Hickory Swamp,	1 mile east of Shamokin,	do. do.	1 slope,	30,872.04	§		
47. Hickory Ridge,	Hickory Ridge,	do. do.	1 slope and 1 tunnel,	9,622.17	23,241.04	21,520.02	‡
48. Lancaster,	1 mile east of Shamokin,	Smith & Keiser,	3 drifts,	16,146.00	6,964.08	8,697.03	13,966.13
49. Buck Ridge,	Shamokin,	May, Audenried & Co.,	2 slopes,	55,182.00	43,560.12	46,198.02	77,500.00
50. Franklin, No. 2,	Helfensteine,	S. S. Bickel,	1 tunnel level,			9,000.00	14,085.00
51. Black Diamond,	Green Ridge,	William Schwenk & Co.,	1 slope,	35,207.02	23,713.09	19,616.11	13,022.14
52. Big Mountain, No. 2,	3 miles N. W. of Mt. Carmel	Northumberland Coal Company,	1 drift,	1,000.00		592.05	
53. West Lehigh,	Glen City,	F. L. Shuman,	1 slope,	18,000.00	§		
54. Glen City,	do.	J. A. Losee, agent,	1 slope,	17,454.06	14,784.14	22,430.15	26,762.04
55. Peerless,	Shamokin,	Crulkshank & Co.,	1 slope and 2 drifts,	¶	12,087.07	33,499.15	23,038.10
56. Paeker,	Mount Carmel,	D. J. Lewis,	1 drift,	8,899.10	1,250.05	5,000.00	370.08
57. Continental,	1 mile east of Centralia,	Lehigh Valley Coal Company,	2 slopes,	59,613.00	25,228.13	53,857.17	107,603.00
58. North Ashland,	do. do.	Phila. and Reading Coal and Iron Company,	1 slope,	35,975.10	11,460.13	71,375.15	128,118.11
59. Shamokin,	West of Shamokin,	Aucker & Bower,	1 drift,	1,288.00	§		
60. Marshall,	Shamokin,	Reese & Brothers,	1 drift,	68.00	971.16	§	
61. Big Mine Run,	Big Mine Run,	Jeremiah Taylor & Co.,	2 drifts,	43,575.00	19,000.00	48,715.06	63,304.18
62. Enterprise,	Little Mine Run,	James R. Cleaver,	1 slope,			§	
63. Pennsylvania,	Green Ridge,	Mineral Railroad and Mining Company,	1 slope,			†	17,102.04
64. Carson,	Carbon Run,	Philip Goodwill,	1 slope and 1 drift,			1,430.00	5,185.00
65. Montana,	Montana,	Miller, Rupp & Beaver,	1 slope,			68.15	118.05
66. Monroe,	do.	A. H. Church,	1 slope,			‡	10,345.18
67. Kline,	do.	John L. Kline,	1 drift,			259.15	239.00
68. Brentzel,	2 miles west of Ashland,	Cleaver & Brentzel,	1 slope,			**	75.00
69. Glen,	Centralia,	Piffer & McBrearty,	1 drift,			300.00	200.00
70. Raush Gap,	Rauseh Gap,	William H. Yohe,	1 drift,			453.10	986.00
71. Gensli,	Centralia,	Pulaski Gensil,	1 drift,			245.10	32.00
72. West Hazel Dell,	do.	William Piffer,	1 slope,			202.00	117.00
73. Bear City,	Bear City,	Frank Martiz,	1 drift,				150.00
74. Little Mine Run,	Little Mine Run,	Piffer, Geraghty & Co.,	1 drift,				23.00
75. Little Mine Run, No. 2,	do.	Bullock & Morgan,	1 drift.				
76. Germantown,	Germantown,	E. C. Herb,	1 drift,				167.10
77. Centralia, outcrop,	Centralia,	Jones & Sykes,	1 drift,				19.00

Tons of coal mined for the year 1875, 3,348,726.

* Pumping water.
† Sinking.
‡ Idle.
§ Worked out.
‖ Shaft sinking.
¶ No shipments.
** Not opened.

CHARACTERISTICS OF COLLIERIES IN THE MINING

COLLIERIES.	SEAMS WORKED.	DIP.	ASH.	Number shafts.	Depth, yards.
Mount Carmel Shaft,	Mammoth,	North and south,	White,	2	157 287
Bast,	Mammoth and Skidmore,	South,	do.	..	...
West Brookside,	Lykens Valley,	North and south,	Red,	..	...
Bear Valley,	Twins,	North,	White,	1	107½
Burnside,	do.	North and south,	do.	..	...
George Fales,	No. 11,	South,	do.	..	...
Helfensteine,	Lykens Valley,	North,	Red,	..	...
Keystone,	Mammoth,	do.	White,	..	...
Loeust Run,	do.	South,	do.	..	...
Merriam,	do.	do.	do.	..	...
Loeust Spring,	do.	do.	do.	..	...
Potts,	do.	do.	do.	..	...
North Ashland,	do.	North,	do.	..	...
Preston, No. 1,	Skidmore,	South,	do.	..	...
Preston, No. 2,	Mammoth and Skidmore and Primrose.	do.	do.	..	...
Preston, No. 3,	Mammoth,	South and north,	do.	..	...
Tunnel,	do.	do. do.	do.	..	...
Wadley Slope,	do.	South,		..	...
Little Diamond,	Little Diamond,	do.	Red,	..	...
North Franklin, No. 1,	Lykens Valley,	do.	do.	..	...
North Franklin, No. 2,	Twins,	North and south,	White,	..	...
Big Mountain,	Twins and Pink Ash,	North and south,	Pink and white,	..	...
Excelsior,	Twins,		White,	..	..
Enterprise,	Twins and Lykens Valley,	North and south,	do.	..	..
Reliance,	Twins,		do.	.	..
Loeust Gap,	Mammoth,	South,	do.	..	.
Franklin, No. 1,					...
Henry Clay, No. 1,	Twins,		White,	1	1:5
Peerless,	Pink Ash and Diamond,	North and south,	Pink and red,	..	...
Stirling,	Twins,	do. do.	White,	..	...
Royal Oak,	Diamond,		Red,	..	...
Ben Franklin,	Lykens Valley,	North,	do.	..	...
Monitor,	Mammoth,	North and south,	White,	..	...
Cameron,	Twins, No. 10, and Lykens Valley.	South,	Red and white,	..	...
Luke Fidler,	Twins,	do.	White,	1	70
Hickory Ridge,	Twins and Skidmore,	Skidmore, north; Twins, south.	White,	..	*
Short Mountain and Lykens Valley.	Lykens Valley,	North,	Red,	..	...
Williamstown,	Lykens Valley and Mammoth.	do.	Red and white,	..	...
Lancaster,	Twins,	South,	White,	..	...
Black Diamond,	Twins,	North,	do.	..	...
Centralia,	Mammoth and Skidmore,	South,	do.	..	...
Stewartsville,	Mammoth and Skidmore,	do.	do.	2—1 1	20 25
Big Mine Run,	Buck Mountain,	do.	do.	..	...
Continental,	Mammoth,	do.	do.	.	...

DISTRICT OF SHAMOKIN, FOR THE YEAR 1879.

CHARACTER OF OPENINGS.										Total length of mine track in yards.	Thickness of coal seam in feet.
Surface slopes.	Length, yards.	Inside slopes.	Length, yards.	Drifts.	Length, yards.	Tunnels.	Length, yards.	Inside planes.	Length, yards.		
. . .	. . .	. . .	. . .	. .	. . . . .	. .	. . . . .	2	130	16,450	17
									160		
2	270	. . .	. . .	1	1,045	2	26	1	85	4,000	25 and 17=42 feet.
	293						270				
2	. . . . .	2	80	. . .	. . . . .	2	62⅔	6—1	50	. . . . .	10
							53⅓	3	each 100		
								1	106⅔		
								1	83⅓		
. . .	. . . .	.	. . .	1	5,000	2	45	1	93⅓	. . . . .	8, 15, and 20=43′
							328				
2	104⅓	. . .	. . .	. . .	. . . . .	1	726⅓	1	. . . . .	. . . . .	8 and 9=17′
	71										
1	202⅔	. . .	. . .	. . .	. . . . .	1	163	. . .	. . . . .	. . . .	6′
. . .	. . . . .	1	177⅔	. . .	. . . . .	1	133⅓	. . .	. . . . .	. . . . .	8′, temporally sus
2	153	. . .	. . .	. . .	. . . . .	. .	. . . . .	. .	. . . . .	. . . .	25′ [pended.
	173⅔										
1	260	. . .	. . .	. . .	. . . . .	1	278⅓	. . .	. . . .	. . . .	25′
2	320	. . .	. . .	. . .	. . . . .	1	. . . . .	. . .	. . . . .	. . . . .	25′
	413										
1	346	. . .	. . .	. . .	. . . . .	. .	. . . . .	. .	. . . . .	. . . . .	15
2	each 302	. . .	. . .	. . .	. . . . .	. .	. . . .	. . .	. . . . .	. . . . .	27
1	196	. . .	. . .	. . .	. . . .	1	110	. . .	. . . . .	. . . . .	20
. . .	. . . . .	. . .	. . .	1	1,520	. .	. . . . .	1	110	. . . . .	7
1	206	. . .	. . .	. . .	. . . . .	2	41	. . .	. . . . .	. . . . .	25, 14, 7=46
							97				
2	117⅓	. . .	. . .	. . .	. . . . .	3	60	. . .	. . . . .	. . . . .	21
	140						79				
							227				
2	. . .	. . .	. . .	. . .	. . . . .	. .	. . . . .	. . .	. . . . .	. . . . .	24 and 7=31
1	221	.	. .		. . . . .		. . . . .	. . .	. . . . .	. . . .	27
. . .	. . . . .	. . .	.	1	175	. .	. . . . .	. . .	. . . . .	250	5
1	. . . . .	. . .	. . .	.	. . . . .	. .	. . . . .	. . .	. . . . .	. . . .	Not working.
. . .	. . . .	. . .	. . .	3	1,300	. .	. . .	. . .	. . . . .	. . . . .	22
					1,350						
					1,300						
. .	. . . .	. . .	. .	7—1	250	. .	. . . . .	. . .	. . . . .	. . . . .	16⅔ feet.
				6	each 1,200						
. . .	. . . . .	. . .	. . .	5—1	200	1	132	. . .	. . . . .	. . . . .	5 and 7=12′
				4	each 700						
2	250	. . .	. .	1	50		. . . . .	. . .	. . . . .	12,035	8
	100										
. . .	. . . . .	. . .	. . .	. . .	. . . . .	. .	. . . . .	. . .	. . . .	. . . .	18′
2	140	. . .	. . .	. . .	. . . . .	1	8⅓	. . .	. . . . .	5,500	30
. . .	. . . .	. . .	. . .	1	500	1	6	. . .	. . . . .	1,300	5½
. .	. . . .	. . .	. .	1	1,850	2	each 40	1	100	4,800	12
1	140	. . .	. . .	1	3,000	1	33	. . .	. . . .	3,600	14
1	320	. . .	. . .	. . .	. . . . .	. .	. . . . .	. . .	. . . . .	4,651	16
. . .	. . . . .	. . .		1	550	. .	. . . . .	. . .	. . . . .	570	4½
. . .	. . . . .	1	125	.	. . . . .	. .	. . . . .	. . .	. . . . .	2,000	7
1	110	2—1	170	. . .	. . . . .	. .	. . . . .	1	80	9,600	22′
		1	100								
3	150	. . .	. . .	. . .	. . . . .	1	60	. .	. . . . .	23,618	24
	125										
	60										
. . .	. . . . .	. . .	. . .	. . .	. . . . .	1	700	4	186⅔	16,871	11⅛
									100		
									133⅓		
									96⅔		
. . .	. . . . .	. . .	. . .	. . .	. . . . .	. .	. . . . .	. . .	. . . .	. . . . .	22
2	435	. . .	. . .	1	4,400	. .	. . .	2	each 100	20,277	9
	505										
1	225	3	225	. . .	. . . . .	1	1,234	6—1	75	21,120	15
			325					5	each 100		
			530								
. . .	. . . . .	. .	.	3	200	. .	. . .	. . .	. . . .	2,350	11½
					1,200						
					300						
1	212	. . .	. . .	. . .	. . . . .	1	135	. . .	. . . . .	2,800	15½
2	60	. . .	. . .	. . .	. . . . .	1	200	. . .	. . . . .	5,600	14′
	200										
1	75	2—1	112	. .	. . . . .	1	300	. . .	. . . . .	3,250	28
		1	50								
. . .	. . . .	. . .	. . .	. . .	. . . . .	. .	. . . . .	. . .	. . . . .	. . . . .	17
2	112	. . .	. . .	. . .	. . . . .	1	190	1	70	. . .	25
	200										

CHARACTERISTICS OF

COLLIERIES.	SEAMS WORKED.	DIP.	ASH.	Number shafts	Depth, yards.
Buck Ridge,	Twins,	North,	White,		
Big Run Gap,	Big and Little Lykens Valley.	South,	Red,		
Glen City,	Buck Mountain,	do.	White,		
Glen,	Mammoth,	North,	do.		
Little Mine Run,	Mammoth,	South,	do.		
Carson,	Diamond,	North,	Red,		
Montana,	Little Lykens Valley,	South,	do.		
Kline,	Little Lykens Valley,	do.	do.		
Pennsylvania,	Twin, No. 19,	North,	White,		
Big Mountain, No. 2,	Little Lykens Valley,	South,	Red,		
Vaughan,	Mammoth,	North,	White,		
Franklin, No. 2,	Lykens Valley,	South,	Red,		
Greenback,	Twins and No. 3,	North,	White,		
Brentzel,	Lykens Valley,	South,	Red,		
West Hazel Dell,	Mammoth,	North,	White,		
Rausch Gap,	Skidmore,	South,	do.		
Monroe,	Skidmore,	do.	do.		
Bear City,	Little Lykens Valley,	do.	Red,		
Little Mine Run, No. 2,	Mammoth,	do.	White,		
Germantown,	Mammoth,	do.	do.		

* Not working last year.

COLLIERIES—CONTINTED.

CHARACTER OF OPENINGS.										Total length of mine track in yards.	Thickness of coal seam in feet.
Surface slopes.	Length, yards.	Inside slopes.	Length, yards.	Drifts.	Length, yards.	Tunnels.	Length, yards.	Inside planes.	Length, yards.		
2	300	. . .	. . .	. .	. . . .	1	85	. . .	. . . . .	3,000	13
	233½										
. . .	. . . . .	. . .	. . .	2	250	. .	. . . . .	. . .	. . . . .	800	16
					500						
1	40	. .	. . .	. . .	. . . . .	. .	. . . . .	. . .	. . . . .	2,060	11
. . .	. . . . .	. .	. . .	1	150	.	. . . . .	. . .	. . . .	250	13
. . .	. . . . .	. .	. . .	1	50	.	. . . . .	. . .	. . .	100	30
1	103	. . .	. . .	1	628	. .	. . . . .	. . .	. . . . .	882	5
. . .	. . . . .	. . .	. . .	1	75	. .	. . . . .	. . .	. . . . .	85	3
. . .	. . . . .	1	23⅛	1	. . . . .	. .	. . . . .	.	. . . . .	116	3⅛
1	300	. . .	. . .	. . .	. . . . .	. .	. . . . .	1	100	1,111	7⅛
. . .	. . . . .	. . .	. . .	1	250	. .	. . . .	. . .	. . . .	270	7
. . .	. . . . .	. . .	. . .	1	200	1	25	. . .	. . . .	250	40
. . .	. . . . .	. .	. . .	1	1,300	1	130	. . .	. . . . .	1,700	8
. . .	. . . . .	. . .	. . .	4	1,200	3	14	. . .	. . . . .	5,000	21
					600		14				
					500		5				
					200						
1	100	. . .	. . .	. . .	. . . . .	. .	. . . . .	. . .	. . . . .	150	8
. . .	. . . . .	. . .	. . .	1	350	. .	. . . . .	. . .	. . . . .	475	5
. . .	. . . . .	. . .	. . .	1	350	. .	. . . . .	. .	. . . . .	375	4½
1	†	. . .	. . .	. . .	. . . . .	. .	. . . . .	. . .	. . . . .	200	16⅛
. . .	. . . . .	. .	. . .	1	100	. .	. . . . .	. . .	. . . . .	115	4
. . .	. . . . .	. . .	. . .	1	75	. .	. . . . .	. . .	. . . . .	100	22
. . .	. . . . .	. . .	. . .	1	70	. .	. . . . .	. . .	. . . . .	120	25

† Sinking.

REPORT OF VENTILATION, EMPLOYEES, COAL MINED, DAYS WORKED, ETC., FOR THE YEAR ENDING DECEMBER 31, 1879.

COLLERIES.	OPERATORS.	INSIDE.						OUTSIDE.				Number lights used.	Number mules and horses.	Number locomotives inside.	Number kegs of powder used.	Number days worked by breaker.
		Nuumber inside bosses.	Number miners.	Number laborers and company men	Number drivers.	Number door boys	Total.	Number bosses and mechanics.	Number laborers and company men	Number drivers and slate pickers.	Total.					
Mount Carmel shaft,	Philadelphia and Reading Coal and Iron Company	3	178	49	33	19	282	12	49	143	204	282	46	. . .	5,160	262
East,	do. do. do.	5	106	69	14	9	203	11	41	84	136	203	34	. .	2,085	255
West Brookside,	do. do. do.	3	196	220	21	58	498	20	53	113	186	498	116	1	7,250	279
Bear Valley,	do. do. do.	2	70	53	20	5	150	9	30	79	118	150	40	1	1,505	276
Burnside,	do. do. do.	1	98	42	14	7	162	7	28	86	121	162	28	. .	1,325	178
George Fales,	do. do. do.	1	26	16	7	2	52	7	9	18	34	52	16	. .	50	19
Helfenstine,	do. do. do.	1	2	1	. . .	. . .	4	1	1	. . .	2	4	1	. . .	*	
Keystone,	do. do. do.	1	7	1	. .	. . .	9	6	14	. . .	20	9	. . .	. . .	165	99
Locust Run,	do. do. do.	1	. . .	1	. . .	. . .	2	6	7	. . .	13	2	. . .	2	15	*
Merriam,	do. do. do.	4	48	64	11	8	135	12	38	71	121	135	21	. . .	1,695	199
Locust Spring,	do. do. do.	3	106	50	8	6	173	8	41	91	140	173	26	. . .	1,500	143
Potts,	do. do. do.	4	41	50	12	11	118	13	37	68	118	118	35	. . .	607	229
North Ashland,	do. do. do.	1	72	47	9	5	134	13	45	102	160	134	29	1	2,810	245
Preston, No. 1,	do. do. do.	1														
Preston, No. 2,	do. do. do.	4	91	36	13	8	152	14	49	90	153	152	42	. . .	1,270	243
Preston, No. 3,	do. do. do.	4	65	68	12	9	158	8	40	79	127	158	32	1	825	249
Tunnel,	do. do. do.	4	10	44	12	6	76	16	39	77	132	76	4	. . .	123	159
Wadley Slope,	do. do. do.	1														
Reliance,	do. do. do.	1	132	21	9	6	169	12	46	128	186	169	26	. .	2,600	176
Little Diamond,	Donahoe & Curran,	. . .	1	1	. . .	. . .	2	. . .	2	. .	2	2	1			
North Franklin, No. 1,	Philadelphia and Reading Coal & Iron Company. *															
North Franklin, No. 2,	do. do. do.	1	95	27	14	5	142	13	33	76	127	142	30	.	2,400	193
Big Mountain,	Patterson, Llewellyn & Co.,	2	150	50	20	14	236	10	30	60	100	236	62	none	4,000	268½
Excelsior,	C. W. Kingsley,	1	68	8	7	4	88	6	21	62	89	88	28			
Enterprise,	Thomas Baumgardner & Co.,	1	95	52	17	1	166	11	22	51	87	166	30	1†	2,401	218½
Locust Gap,	Graeber & Shepp,	1	42	23	5	3	74	14	26	75	115	74	30	none	1,594	251
Franklin, No. 1,	C. M. Voght,	1	14	. . .	2	. . .	17	1	4	11	16	17	3	. . .	. . .	70
Henry Clay, No. 1,	J. Langdon & Co.,	2	150	73	6	2	233	8	27	66	101	253	30	. . .	2,730	278
Henry Clay, No. 2,	Philadelphia and Reading Coal & Iron Company. ‡															
Peerless,	Cruikshank & Ems,	1	58	12	3	. . .	72	4	15	26	45	72	13	none	600	144
Stirling,	Kendrick & Co.,	1	100	26	6	3	136	6	21	47	74	136	17	. .	1,980	245
Royal Oak,	Tillet & Son,	. . .	1	1	. . .	. . .	2	. . .	2	. . .	2	2	3			
Ben Franklin,	Douty & Baumgardner,	1	51	20	6	. . .	78	5	16	44	65	78	22	none	850	236
Monitor,	George W. Johns & Brother,	1	125	56	12	2	196	6	32	85	123	196	30	. . .	2,597	246½
Cameron,	Mineral Railroad and Mining Company,	1	158	67	30	5	261	11	64	68	143	261	66	1†	3,357	285

Luke Fidler,	Mineral Railroad and Mining Company,	1	150	38	30	3	222	8	28	86	122	222	52	none	2,751	220
Hickory Ridge, §	do. do.															
Pennsylvania,	do. do.	1	50	38	5	3	97	12	28	40	86	97	18	none	588	97
Short Mountain,	Lykens Valley and Short Mountain Coal Co.,		184				184		348	152	500					
Packer,	David J. Lewis,		4		1		5	1	1	4	6	5	3		12	10
Williamstown,	Summit Branch Coal Company,	5	258	173	52	25	513	14	65	153	232	512	97		2,543	247¼
Lancaster,	Smith & Keiser,	1	28	1	3		33	3	3	13	19	33	8		387	159
Black Diamond,	William Schwenk & Co.,	1	20		1		22	2	5	11	18	22	5	none	311	125.7
Centralia,	G. M. Prevost,	1	41	50	8	2	112	5	14	64	83	112	40		500	126
Hazel Dell, No. 2,	George Troutman,	1	30	6	2	1	40	4	7	32	43	40	8		331	143
Lilly,	do.	1	2	4			7	1	1	2	4	7	3		100	122
Stewartsville,	William Montellus,	1	62	28	7	2	100	8	18	59	85	100	14	none	1,387	187
Big Mine Run,	Jeremiah Taylor & Co.,	2	90	34	8	13	147	8	30	86	124	147	28	none	2,109	158¼
Continental,	Lehigh Valley Coal Company,	1	47	88	8	4	148	10	37	70	117	148	18	1	2,438	211½
Buck Ridge,	May, Audenreld & Co.,	1	90	30	6		127	6	13	55	74	127	23	none	900	206
Big Run Gap,	James Fennel,		5	4	2		11	1	3	1	4	11	5	none	75	170
Glen City,	J. A. Losee, Agent,	1	19	21	2	1	44	5	17	37	59	44	10		544	185.6
Glen,	Piffer & McBrlarty,		1	1			2		2	1	3	2	1			
Little Mine Run,	Piffer & Geraghty,		1	1			2		1		1					
Carson,	Philip Goodwill,	1	20	20	1		42	4	8	20	32	42	6	none	247	104
Montana,	Miller, Rupp & Beaver,		1	1			2		1		3					
Gensil,	Pulaski Gensil,		1				1		3				2	none		
Kline,	John L. Kline,	1	1	1			3		1		1	3	2			
Big Mountain, No. 2,	Isaac Lewis,	1	3	1	1		6		2		2	6	1			
Vaughan,	David Vaughan & Co.,		4	2	1		7			2			1	none	96	240
Franklin, No. 2,	S. S. Bickel,	1	13	15	2		21	4	13	14	31	31	5		200	177
Coal Ridge, No. 2.																
Coal Ridge, No. 3.																
Greenback,	H. J. Toudy,	1	29	24	5		59	7	14	39	60	59	16	none	419	115
Brentzel,	Brentzel & Cleaver,		6	3			9	1	5		6	9				
West Hazel Dell,	William Piffer,		2	1			3		2		2					
Rauseh Gap,	William H. Yohe,		2	1	1		4		2				1		36	267
Monroe,	A. H. Church,	1	15	16	2		34	14	18	23	55	34	4	none	395	70
Bear City,	Frank Martz,		2		1		3		2		2	3	2	none	10	100
Little Mine Run, No. 2,	Bullock & Morgan,		1				1	3			3	1	1		7	
Germantown,	E. C. Herb,		1				1		1		1	1	1	none	4	85
Centralia outcrop,	Jones & Sykes,		1				1		1		1					

* Not working.

† Outside.

‡ Worked out and abandoned.

§ Not working—breaker burned down November, 1878.

‖ Inside and outside.

REPORT OF VENTILATION, ETC.—CONTINUED.

COLLIERIES.	VENTILATION.					MACHINERY.									
	Diameter fan—feet.	Power.	Revolutions per minute	Drag—inches.	Number cubic feet per minute discharged.	Number of engines.	Diameter of cylinder—inches.	Stroke—inches.	Hoisting drum, diameter in feet.	Hoisting rope, diameter in inches.	Number boilers.	Length in feet.	Diameter in inches.	No. persons killed.	Number tons of coal shipped.
Mount Carmel shaft,	18	40	55	7-10	57,807	13	H. P. 505				19			3	180,934.16
Bast,	15	25		1 5-10	18,134	11	1,150				18	30	34		141,435.17
W. Brookside,	18					15					26			4	410,815.09
	16														
Bear Valley,	14	50	80	1	19,654	7					12	30	34		98,417.02
Burnside,	12	40	98	6-10	32,834½	5					11	30	30		56,463.01
George Fales,						3					4	30	34		3,952.08
Helfenstine,	10	20				3					7				
Keystone,	18	50			25,657	6					19	30 to 36	30 to 36	1	27,604.09
Locust Run,	10½	35				6					19	28 to 30	34	1	
Merriam,	18	40	90	2 2-10	40,250	7					25	20 to 30	30 to 34		64,345.19
Locust Spring,	12	20		8-10		4	H. P. 200				12	30	34	3	65,770.02
Potts,	16	30	110	2 5-10	43,981	6					31	20 to 30	30 to 36	1	88,493.04
North Ashland,	12	20	80	1	42,251	8					12	30	32 to 34	2	128,118.11
Preston, No. 1.															
Preston, No. 2,	15		90	1 6-10	24,750						17	26 to 36	34	2	93,967.12
Preston, No. 3,	15	40	50	4-10	11,465						22	26 to 30	30 to 34		91,278.12
	and	40	87	and	31,157										
	16			2 6-10											
Tunnel,	3—13	40			35,000	13	H.P.1,315				36	22½ to 30	34 to 40		71,413.11
	14	12													
	18	30													
Wadley Slope.															
Reliance,	12	20		6-10	31,457	5	H. P. 260				11	26 to 36	34 to 36	2	84,666.13
Little Diamond,															156.00
North Franklin, No. 1.															
North Franklin, No. 2,															
Big Mountain,	12	20	160	1	14,200	3—1	12	22	10		11	30	34		84,537.14
						1	16	18			5	30	30	2	148,551.06
						1	12	24							
Excelsior,					21,637										67,195.10
Enterprise,	12	50	120	6-10	20,114	3—1	16	36	12	1⅛	17—3	30	20	1	110,581.03
						1	14	72			2	30	29		
						1	24	48			1	30	22½		
											3	34	28½		
											2	30	28⅛		
											6	36	29		

Locust Gap,	12	15	70	1	12,000	4—2	20	72	8	1¾	12	30	36	. .	86,068.05
						1	18	36	and	2¼					
						1	16	36	12						
Franklin, No. 1,	Natural.	. . . .	. . . .	. . . .	. . . .	1	7	36	. . . .	. . . .	1	28	30	. .	2,072.02
Henry Clay, No. 1,	12	30	70	4-10	24,919	6—2	each 24	48	. . . .	2	8	28	34	1	137,188.07
						1	16	36							
						2	each 18	48							
						1	12	24							
Henry Clay, No 2,	. . . .	. . . .	. . . .	. . . .	*										
Peerless,	. . . .	. . . .	. . . .	. . . .	4,832	2—1	12	24	6	1¼	6—2	30⅛	30	.	23,038.10
						1	18	30	9	1⅛	4	34⅛	30		
Stirling,	12	20	60	1 2-10	10,132	4—3	each 16	30	12	1¼	8	31	30	2	76,545.14
						1	12	16							
Royal Oak,	. . . .	. . . .	. . . .	. . . .	530	. . .	. . . . .	. . . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. .	392.10
Ben Franklin,	. . . .	. . . .	. . . .	. . . .	8,733	2	. . . . .	. . . . .	8	1½	6	28	28	2	51,604.13
Monitor,	1—12	20	120	8-10	36,000	6	. . . . .	. . . .	. . . .	2 1½	18	40	34	4	110,429.03
										1¾		30	30		
												20			
Cameron,	2—12	25	110	1 1-10	28,770	9—1	14	40	2—10	6 1¼	27	30	36	. .	161,403.19
	14	60	120	2 2-10		2	16	36	2—8	4 1⅜					
						4	12	24	1—9						
						1	18	72							
						1	13	18							
Luke Fidler,	12	25	100	8-10	21,837	9—2	14	30	4—6	1¾	13	30	30	. .	114,654.06
						2	16	30	8	1¼					
						5	14	30	6	1¼					
									10	1¼					
Hickory Ridge,	. . . .	. . . .	. . . .	. . . .	Idle.										
Pennsylvania,	12	25	100	. . . .	. . .	4—2	18	36	13	1¾	9	28	34	1	17,102.04
						1	14	24							
						1	12	12							
Short Mountain,	2 each 14	each 40	100	. . . .	25,268	. . .	. . . . .	. . . . .	. . . .	. . . .	. . . .	. . . .	. . . .	5	194,784.00
Packer,	. . . .	. . . .	110	. . . .	*	1									
Williamstown,	3—1-14	60	100	. . . .	195,000	26	†15	†34⅘	10	1⅛	48—20⅘	28	34	6	370.08
	each 2-10	120	180						8	1⅛	20	26	30		259,889.10
									18	1¾	4	21	30		
									10	2	4	25	30		
Lancaster,	. . . .	. . . .	. . . .	. . . .	6,682	1	. . . . .	30	. . . .	. . . .	2	16	34	1	13,966.13
Black Diamond,	12	20	90	3-10	3,392	4—2	14	each 30	10	1⅛	6	30	34	. .	13,022.14
						2	12	1-18							
								1-4							
Centralia,	12	25	. . .	. . . .	‡	3—1	20	72	12	2	26	30	34	. .	37,805.00
						2	15	36	8	2¼					
Hazel Dell, No. 2,	Natural.	. . . .	. . . .	. . . .	. . . .	3	H. P. 60	. . . .	8	1¼	4	30	30	. .	13,193.00
							25								
							20								
Lilly,	. . . .	. . . .	. . . .	. . . .	. . . .	. .	. . . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. .	2,774.00
Stewartsville,	14	20	. . .	. . . .	5,550	3—2	each 14	24	2 each	each 1¼	10—8	30	30	. .	55,106.16
						1	16	24	8		2	20	48		
Big Mine Run,	10	30	108	6-10	14,008	5—2	16	30	2—11	1⅛	16—6	26	34	1	63,303.18
						1	13	30	11	1¼	10	30			
						2	11	30							

REPORT OF VENTILATION, ETC.—CONTINUED.

COLLIERIES.	VENTILATION.					MACHINERY.									
	Diameter fan—feet.	Power.	Revolutions per minute.	Drag—inches.	Number cubic feet per minute discharged.	Number of engines.	Diameter of cylinder—inches.	Stroke—inches.	Hoisting drum—diameter in feet.	Hoisting rope—diameter in inches.	Number boilers.	Length in feet.	Diameter in inches.	No. persons killed.	Number tons of coal shipped.
Continental,	2—12 16	50	120 90	7-10	15,354	8			14	1¾	19	30	34		107,603.00
Buck Ridge,	12	10	100		1,200	5—1 2 1 1	20 16 14 10	48 48 48 18	9	1½	11	30	34		77,500.00
Big Run Gap,						none					no e.				2,703.10
Glen City,						3—2 1	15 18	27 48 72	9 8	1¼ 1½	8—2 3 3	22 25 30	34 30 34		26,762.04
Glen,															200.00
Little Mine Run,															23.00
Carson,						2—1 1	16 12	48 36	8	1½	4	30	30		5,185.00
Montana,															118.05
Gensil,															32.00
Kline,															239.00
Big Mountain, No. 2,															600.00
Vaughan,						1	5	8						1	3,838.00
Franklin, No. 2,						1	12	36			2	30	30		14,085.00
Coal Ridge, No. 2.															
Coal Ridge, No. 3.															
Greenback,	none.				15,450	2—1 1	12 10	36 30	7	1¼	4—2 2	25 25	34 23		16,567.08
Brentzel,															75.00
West Hazel Dell,															117.00
Rausch Gap,															986.00
Monroe,	10	25	80			3—1 1 1	12 10 20	48 30 72	9	1¼	6	28	32		10,345.18
Bear City,															150.00
Little Mine Run, No. 2.															
Germantown,															167.10
Centralia, outcrop,															19.00

* Worked out. † On an average. ‡ Breaker burned.

BITUMINOUS.

FIRST DISTRICT—Wm. Wilcox, Inspector.

To the Honorable A. K. DUNKEL, *Secretary of Internal Affairs of the Commonwealth of Pennsylvania:*

SIR: I have the honor herewith to submit my third annual report of the inspection of coal mines in the first bituminous coal district, for the year ending December 31, 1879, as required by act of Assembly of April 18, 1877.

The district embraces the counties of Greene, Washington, Fayette, Somerset, Bedford, Westmoreland, and that portion of Allegheny county lying south of the Ohio and Allegheny rivers.

In report will be found, in tabulated form, the number of casualties resulting from accidents in the mines, number of mines in the district, with map showing location of the same, number of deaths in and about the mines, number of persons employed, estimated total number of tons produced for 1879, the number of tons produced per each fatal and non-fatal accident, the number of persons employed per each fatal and non-fatal accident, number of tons per each accident, number of widows and orphans, &c., together with such other information I have deemed of general importance in this district. The number of accidents from all causes are one hundred and twenty-nine, of these thirty-six proved fatal, being an increase of accidents over that reported in 1878 of thirty-six, with four more on the death list. This increase in number I attribute to two causes, the dangerous nature of mining in the district where the greater number of them took place, and the fact that those statistics have been collected more fully and with more care the past year. There has also been, according to estimate, an increase in the out-put of 672,045 tons over 1878. Of the cause of these accidents I have spoken more fully in another part of the report. Upon visiting and investigating them many of them showed the same amount of gross carelessness, negligence, or want of forethought and caution that should govern all mining operations.

In the district there are two hundred and forty-eight mines, two hundred and sixteen of which has been operated the past year, and to meet the growing demand of the coal and coke trade, new mines are being opened every year. In a district so large in extent and number of mines, a great amount of labor is required to visit all, even once a year, and the inspector of a dis-

trict like this must do a great amount of traveling, both under and above ground, in order to give the work the attention demanded. A great part of his time is taken up with clerical duties, attention to needed correspondence, making out reports, conferring with operators on questions relating to the working of the mines, investigating accidents, &c., fully occupying one third of his time.

During the past year, three hundred and fifteen visits have been made to the mines, requiring thousands of miles to be traveled, below and above ground, at much labor and expense. Much improvement has been made to drainage and ventilation, more than ever before in the history of coal mining in this district, yet more might have been accomplished for the health and safety of the men could the mines have been visited oftener. Every mine in this district should have a thorough inspection at least every six months. In a dangerous occupation like mining, with things in constant state of change as coal is being sent out, it is not sufficient that one inspection a year be made; but, with so many mines to look after, it is impossible for more to be done. The duties and responsibilities resting upon the shoulders of a mine inspector, where so many lives are entrusted to his care, are very great. Therefore, with a due regard for the health and safety of the miners, I would recommend that the district be divided into two equal divisions, taking in consideration the amount of labor to be performed by each. This would allow visits to be made twice a year, with about the same labor that is done now, and would tend to prevent accidents and keep the mines in much better condition.

There were a few mines not visited last year for want of time, and some others not visited as often I could have wished, for the same reason, whilst many of them were visited three or four times. My attention being directed to those where improvements were needed most, in order to bring them up to the standard required by the law. While I am glad to be able to report the mines in much better condition than last year, yet they are by no means perfect, and much more is required before all are in a satisfactory condition. At many of the mines, ventilating furnaces have been built and new pumps put in this year, and although some of these ventilating apparatuses are not all that the inspector would desire, yet they are a great improvement on previous existing arrangements; and many of them are of good substantial character and afford ample ventilation, and with few exceptions the operators have been ready to carry out my suggestions to put their mines in condition to enable them to comply with the law.

I have the honor to remain,

Very respectfully yours,

WILLIAM WILCOX,

Bituminous Mine Inspector, First District, Pennsylvania.

MANSFIELD, ALLEGHENY COUNTY, PA., *January 31, 1880.*

On the 30th of December, 1879, I issued the following circular to the operators of this district, asking them to make returns of the average number of men employed, and amount of coal shipments, &c. Reports were received from . . . mines, which enabled me to tabulate the results, and also to make an estimate of the whole number of men employed, the number of days worked, the aggregate number of tons mined, &c.

Office of the Mine Inspector of the
First Bituminous Coal District of Pennsylvania,
Mansfield Valley, Allegheny County, *December 30, 1879.*

To . . . . . .

You will confer a favor on me if you will fill the blank below, and return it to this office not later than January 15, 1880. The facts furnished by you will be treated as strictly private, and will not be published, only in the aggregate production of this district. It is the custom, in all great mining countries, to publish these statistics, both for the information of all parties engaged in the business of mining and shipping coal, and for that of the reading public, to enable us to draw comparisons with other great mining centers of the civilized world. Such information is of the first importance, both to the operator engaged in the business, and the public at large, for by publishing these statistics yearly, we may arrive at a correct knowledge of the increase of business in our department of industry. To enable me to furnish this information, I now ask your assistance, and hope for a favorable reply.

Total number of tons mined of 2,000 pounds each.
Average number of persons employed inside.
Average number of persons employed outside.
Average number of mules employed inside.
Average price paid per ton for mining.
Number of days worked in 1879.
Estimated amount of powder used per ton.
Improvements made during 1879.

In reply to the above circular, I received reports from eighty-seven mines, from which I am able to arrive at the following results:

In the reports received from the eighty-seven mines, the aggregate was, in tons,	4,045,873
Total cost of mining alone, was	$2,005,207 12
Number of miners reported at eighty-seven mines, was	5,951
Number of outside hands reported,	1,342
Average number of tons mined at each mine,	$46,504\frac{25}{87}$
Average number of miners at each mine,	68
Average number of days worked at each mine,	157
Average amount mined by each miner, in tons,	680
Average price paid for mining, per ton,	$49\frac{57}{100}$ cents.
Average amount earned per each miner,	$337 07

Average number of tons mined per day per man,	$4\frac{52}{157}$
Number of mules employed in the mines reported,	629
Average number of mules employed inside,	$7\frac{20}{87}$
Average number of day hands, as reported at each mine,	$15\frac{37}{87}$
Estimated number of miners employed in the district,	14,788
Estimated number of other hands employed,	3,332
Total number of persons employed,	18,120
Estimated amount of coal produced in the whole district, in tons of 2,000 pounds each, exclusive of nut coal and slack, for 1879,	10,044,926
Total number of accidents in 1879,	129
Number of non-fatal accidents,	93
Number of fatal accidents,	36
Number of persons employed per life lost,	503
Number of persons employed per non-fatal accident,	$194\frac{78}{93}$
Number of persons employed per each accident,	140
Estimated number of tons produced per fatal accident,	279,026
Estimated number of tons produced per non-fatal accident,	108,009
Number of tons produced per each accident,	77,867
Number of deaths by falls of slate and coal,	24
Number of deaths by wagons,	6
Number of deaths by explosive gas,	2
Fatally injured by explosive gas,	2
Fatally injured by pick-handle,	1
Found dead in his room,	1
Number of persons having legs broken,	22
Number of persons having arms broken,	2
Total number burned by explosive gas,	8
Number of persons hurt by wagons,	12
Number hurt by various causes,	49
Number of widows from accidents,	16
Number of orphans from accidents,	65
Number of deaths in 1878,	32
Number of accidents in 1878,	93
Total number of mines in the district,	248
Number of new mines opened in 1879,	13
Number of mines exhausted in 1879,	9
Number of mines not operated in 1879,	32
Total number of mines operated in 1879,	216
Number of mines ventilated by artificial means,	115
Total number of furnaces in operation,	97
Number of fans in operation,	7
Ventilated by steam exhaust,	11
Number of furnaces built in 1879,	54

Number rebuilt in 1879,	11
Total number of furnaces built in 1879,	65
Total number of shafts sunk for ventilation,	126
Number of shafts sunk for ventilation in 1879,	61
Number of hoisting shafts in operation,	15
Number sunk in 1879,	3
Number of hoisting slopes,	21
Number of slopes sunk in 1879,	1
Number of drift mines in the district,	212
Number of stationery engines at work,	50
Number of mine pumps in operation,	53
Number of boilers in operation,	110
Number of incline planes in operation,	77
Number of locomotives at work underground,	9
Number of engines hauling with tail-rope,	7
Number hauling with endless rope,	2
Number of engines hauling with wire rope,	32
Number of engines hauling with chain,	3
Total number of wire ropes in use,	229

In the above report as to amount of coal, number of men employed, &c., I have done the best I could under the circumstance, and which, I have no doubt, are nearly correct. But it would be much more satisfactory if the operators would all send me a yearly statement of coal mined, number of men employed, &c. It would enable me to get out a much better report. Of the two hundred and sixteen mines in operation the past year, seventy-five are river mines, and running to the river trade, the balance are railroad pits. Reports were received from twenty-nine river mines and fifty-eight railroad pits.

The coke region is represented by eighteen mines out of a total of fifty-three. The railroad mines have all done much more business the past year, and the coke region has increased its production I think fully one third, whilst production from river mines has decreased about one fourth the past year. This decrease in river mining is owing to two causes, the strike amongst the miners in the spring months, and low water during the summer months. According to the report of the president of the Slackwater Navigation Company, the amount of coal shipped by Monongahela river was 62,015,300 bushels. The river mines, when in full operation, have a capacity of nearly 1,000,000 bushels per day, and in ninety days full work can supply the whole of the Ohio river trade.

ACCIDENTS.

During the year 1879 there has been an increased number of accidents over that of 1878. It will be seen the total number of accidents are from all causes, one hundred and twenty-nine, and the number which resulted fatally from all causes in and about the mines, are for 1879, thirty-six in number. One of them can hardly be called an accident, that of George

Beauregard, who was found dead in his room, and not with the least visible injuries, and is thought to have died from heart disease. Charles Robinson was supposed to have been hurt by a pick handle whilst attempting to get on the cage, which resulted fatally, and George Williams, a boy of fourteen, was instantly killed outside, by being caught with a wagon. Five others were killed by wagons, or received injuries from which they never recovered.

Of the one hundred and twenty-nine accidents that occurred the past year, one hundred and thirteen were over twenty-one years of age, and sixteen were under twenty-one. Of the number that resulted fatally, but six were under twenty-one years of age. The number of orphans left by these accidents are sixty-five, and the number of widows sixteen. The number burned by explosive gas are eight, four of which proved fatal. Three of them were burned slightly, and was the result of their own carelessness, in going into places where they had no business.

The accident by which Frank and James Fitzpatrick lost their lives, and John Thomas, mining boss, was burned, was the want of that caution on the part of Thomas that should be exercised by every mining boss in this region. It is a fact that ought to be known to every miner in this region that it is unsafe for any person to go on top of falls to explore them with a naked light. In the year 1878 four persons were burned in this manner in this district, and the sooner the miners quit this practice the better for themselves and those about them.

The greater part of the fatal accidents the past year were caused by falls of slate and coal, and, strange as it may appear, the most of them have occurred to old and experienced miners. After a careful examination into all the circumstances attending the deaths, I am sorry to say that in many of the cases there appeared to have been too much venture and neglect, and not sufficient caution used on their part. Many of them happened from fall of slate, and it very often occurs when the parties are loading a wagon with coal, being anxious to get this done, they neglect to take the precaution to stand a sufficient number of timber to secure themselves against danger until it is too late. So reckless are some of our miners in this respect, that it almost amounts to involuntary suicide on their part, as the following cases will show:

John Lott, age fifty-four, was killed in the Plum Creek mines by fall of slate, under the following circumstances:

He and his son, eighteen years old, were working in a room. He was loading a wagon, while young Lott was bearing in. A small boy came into the place to get the loan of a wedge for his father, who worked a few rooms from Lott. The boy noticed the dangerous condition of the slate under which Lott was working, and told him about it, said it was going to fall, but Mr. Lott was so anxious to get the wagon loaded he paid no attention to what the boy said, but went on with his work, it was but a few minutes before the slate fell upon him.

John West, an old and experienced miner, was killed at the Grant mines, June 4, by fall of slate. I had visited the mine the day previous and noticed a large quantity of slate under which West and his partner were at work, and spoke to them of the necessity of protecting themselves, by standing up timber, to which they replied they would watch it and set up timber in time. But this they neglected to do, and while both were busy loading a wagon the slate fell, killing West instantly.

There are several other cases where the parties had been warned of their danger but a short time before the accident occurred, but they heeded not the warning. I mention these cases with strong feelings of pity for the poor victims, and with the hope the above may be a warning to all miners and workers under ground, never to neglect an opportunity to protect their lives, and also to show the dangerous nature of the miners occupation in this district. Accidents by falls are becoming alarmingly frequent, and I very much regret their occurrence and upon all visits urge the miners to be more careful and the mining bosses to be more watchful over those under their charge, to see that upon all occasions they are well supplied with timber and all necessary precautions taken for the protection of the men. This state of things would appear to call for a remedy, but what the remedy shall be and how to apply it under existing laws, is the question now before us.

But while there has been an increased number of accidents in the district, there has also been an increased amount of coal mined in the aggregate, corresponding to the increased number of accidents. Still we ought not to rest satisfied, but devote all our endeavors to increase the out-put and diminish the number of accidents. This I understand to be the object of the mining laws of this and all other countries, and if this is not accomplished they fail in their object. I would remark, before closing this part of my report, that more care on the part of the mining bosses and stricter discipline among the workmen are required before we can hope for a reduction in the number of accidents in this district.

About the last of February, 1879, I issued the following circular to all the operators in the First Bituminous district, asking their close attention to the law:

Office of Inspector of Bituminous Coal Mines,
First District of Pennsylvania,
Mansfield Valley, Allegheny County, *February 21, 1879.*

To the mine owners, operators, and mine superintendents of the First Bituminous district of Pennsylvania:

Gentlemen: Allow me to call your attention to some of the most important provisions of the ventilation law, entitled "An act providing the means for securing the health and safety of persons employed in the bituminous coal mines of Pennsylvania."

The first section of said law requires, "that the owner or agent of every

bituminous coal mine or colliery, shall make or cause to be made, an accurate map or plan of the workings of such coal mine or colliery," &c.

Section two requires "that every mine shall be provided with at least two openings, separated by natural strata, of not less than one hundred and fifty feet in breadth, if the mine be worked by shaft or slope, and of not less than twenty-four feet, if the mine be worked by drift. The law furthur requires, "that one opening shall be set apart exclusively for the purposes of ingress and egress," &c.

The fourth section requires you "to provide ample means of ventilation, affording one hundred cubic feet per minute for each and every person employed in said mine, which shall be circulated through the main headings, and cross-headings to an extent that will dilute, carry off, and render harmless the noxious gases generated therein."

The fifth section provides that you "shall employ a competent and practical inside overseer, to be called mining boss, who shall keep a careful watch over the ventilating apparatus, the air-ways, traveling-ways, pumps, and pump timbers, and drainage, and shall see as the miners advance their excavations, all loose coal, slate, and rock overhead are carefully secured against falling in or upon the traveling roads, and that sufficient timber is furnished of suitable lengths and sizes, for the places where they are to be used, and placed in the working places of the miners." And, in view of the many accidents in 1878, both of a fatal, and non-fatal character, I would here call the attention of the mining bosses to this matter; the number of fatal accidents from falls of coal and slate alone in the year just closed, were twenty-five. This alarming number of fatal accidents from one cause alone, should put every mining boss on his guard, and he should use every means at his command to prevent accidents of all kinds. It would be presuming too much to say, that all these could have been prevented, but it is quite reasonable to believe, that a number of them might have been, had more care been exercised on the part of the mining bosses, and the miners themselves. The law also requires, "that the mining boss shall measure the air current at least once a week at the inlet and outlet, and at or near the face of the headings, and keep a record of such measurements, and report the same to the inspector of his district once a month."

All the above provisions of the law have been complied with by many of the operators, and their reports have reached me regularly every month, but the provision in relation to air measurement has been totally neglected by some, whilst others again have reported air measurements at the inlet and outlet only, the most important measurement, that at the face of the headings being omitted altogether. Others report the same air measurements every month, no doubt thinking the inspector will believe them to be correct. It is hardly necessary for me to say, that all such reports are worse than useless, as they convey no correct knowledge of the state of ventilation, and if the aim of the parties who make such reports is to deceive the inspector, I can assure all such, that they fail entirely in their

object. It is not sufficient that the air enter at one opening, and leave by another; the law requires that it be circulated through the main-headings and cross-headings. In order to do this, the air-courses, stoppings, and doors must be well maintained and carefully watched, and artificial means applied capable of moving the required amount of air to sweep the mine clear of all noxious gases. One of the principal evils in mine ventilation, and one which should be condemned wherever found in practice, is that of having men working beyond the air-current. None but heading drivers should be allowed to work beyond the air courses.

To enable operators to comply with the requirements of the law, I would suggest the following rules be adopted at every colliery in this district:

First. All mines to have at least two openings, always available for ingress and egress.

Second. All mines to be mapped in accordance with section first of the law.

Third. Artificial ventilation for each mine. Fan or furnace being the most practicable for that purpose.

Fourth. The proper observance of the sixth section of the law by the workmen.

Fifth. Competent and practical miners for mining bosses.

Sixth. Timber to be furnished of suitable lengths and sizes for the places where they are to be used, and placed in the working places of the miners.

Seventh. Air measurements to be made weekly at the inlet and outlet, and at or near the face of the heading, and reported to the inspector every month.

Eighth. Air-currents to be circulated through all the headings and cross-headings, and that no men but heading drivers be allowed to work beyond the air-current.

Ninth. Proper attention paid to the drainage of the mine, a thorough overhauling of all air-courses, and all leakages to be properly sealed.

Tenth. All air-ways to have at least thirty-six feet of sectional area, and all doors hung so they will close themselves.

Eleventh. In any case of fatal accidents, the inspector, and coroner of the respective districts to be notified immediately.

Twelfth. All places generating explosive gas to be examined by a competent person, before any miner or other person is allowed to enter.

Thirteenth. All shafts to be properly fenced off at the top, safety-catches on carriages used for hoisting persons in and out of the mine, and covers over-head, for protection of persons whilst riding.

Fourteenth. In shaft used for ingress and egress, good stairways to be provided, with landings at easy and convenient distances.

I make the above suggestions, believing that your attention has only to be called to the matter, to enable me to administer the law in a just and

equitable manner, as the law itself contemplates. And trusting our relations, as heretofore, will be agreeable and pleasant, and that you will see that all the requirements of the law are carried out, for the health and safety of the men in your employ.

I remain yours,

Respectfully,

WILLIAM WILCOX,

Inspector Bituminous Coal Mines, First District.

There are several systems of working adopted in this district. In drift mining, the principle one is single-heading. In shaft mining, double-heading is in practice, as well as in many of the drifts. In drift mines, the main-headings are commenced from the crop line, and driven through the hill. Should the distance be too far, either another heading will be driven along side, or a shaft put down for ventilation—the latter plan is often adopted. From the main-headings, cross-headings are turned every one hundred and fifty yards, driven up the same distance, when an air course is commenced, either out to daylight, or to connect with another cross-heading being driven in the same course, but one hundred and fifty yards distant. To drive this air-course, requires one hundred and fifty yards more heading to be driven, before a circulation of air can be secured. This air-way is generally carried to the next cross-heading, &c., thus cutting the coal into square blocks of one hundred and fifty yards each, and as the work progresses this plan is kept up, except when coming near the outcrop, a heading will be opened through to daylight. The cross-headings are opened on the end of the coal, rooms being turned on the face. These rooms are started from the cross-heading seven feet wide, driven up twenty-four feet, then opened to twenty-one feet, leaving a pillar of twelve feet between each room, and is then worked up to seventy-five yards from the place of beginning, when the pillar is cut through and removed. I should have remarked, that when the room has been driven thirty yards, the pillar is cut through for two reasons: the first, to assist ventilation; second, to find out the thickness of the pillar.

For convenience in removing the pillar, the hauling road is carried along the pillar, the balance of the room being occupied with props, gob, &c. Another plan, is to work the room twenty-seven feet wide, leaving a pillar of six feet, and carry the road up the middle of the room. Under this system the pillar is left in, the room being abandoned after it has been worked to the middle of the block. In a mine laid out and worked on the above plan, the course of the air current would be up the first cross-heading, through the upper air course to the next cross-heading, down it to the main-heading, and up the main-heading to the next cross-heading, &c., either in one or more currents as the case may be.

I will now briefly state how I find this system carried out in this district. Some operators drive these headings and air-ways a long way ahead, thus keeping a large number of headings open, producing good ventilation,

and having plenty of pit room. In case of an extra amount of coal being needed, it can be snpplied with the least effort on the part of the superintendent or mining boss. Others neglect or refuse to keep the headings sufficiently well advanced, and in the rush to get coal, when needed, men are put to work to turn rooms before air courses are through, and a supply of air furnished.

This has been a cause of much trouble in my district, and one which I have used every means to break up, and is a system that I characterize as nothing but a piece of ignorance and stupidity on the part of the superintendent or mining boss who practice it, as there is nothing to be gained by adopting such a course, but much loss in the end. The single-heading system has other and very serious disadvantages, in that the heading driver is compelled to work too far ahead of the air-currents, the air in which he labors being devoid of the proper amount of oxygen to support life in a healthy condition. Some of the operators who work their mines on the single-heading system provide brattice while headings are being driven, which is kept within a reasonable distance of the face of the work, and, of course, these remarks do not apply to them. Another disadvantage of this system is large quantities of coal that cannot be gotten must be left in the mine, and become a total loss to the owner. The principle objection, however, to the single-heading system is, that ventilation cannot be as well secured as by double-heading. In a few of the mines worked on this system, the cross-headings are turned ninety yards apart, with rooms on one side only; this is where the coal seam pitch, and is done to avoid water and hauling against the grade. The single-heading system had its origin in the early stages of drift mining, and is fast being abandoned in my district, giving place to that of double-headings.

Why operators cling to this system is hard to tell, as to work it successfully requires the same amount of heading to be driven as in the double-heading system.

The proper mode of working and ventilating in this district is by double-heading and artificial ventilation. The fan and furnace are the best ventilators, and no mine, except in a limited number of cases, can be thoroughly ventilated without the application of one or the other. With these means at command, ventilation in our mines can always be made effective, and carried to the face of every heading in the mine. All that is necessary to do, in working double-heading, when a fresh supply of air is needed, is to cut through the pillar, build up the last break-through, and thus drive the air current to the face of the heading. With ventilating apparatus of sufficient power, and double-headings, and good, wide air-ways, there need be no difficulty in producing a sufficient amount of air in any of our mines to keep them clear of all noxious and poisonous gases, as well as render them free from explosions of a violent nature. Still there are a few operators who persist in keeping their mines just below the requirements of the law; but happily this class are getting fewer every year.

The great need in this district, just now, is intelligent superintendents and mining bosses; men who can understand instructions given by the mine inspector, and are willing to carry them out. In some parts of the district, men are placed in charge of the mines who know very little of the principles that govern air in motion, and who, if they have a small air current in the mine, rest satisfied, no matter whether the air be pure or not. The great fault in this district, has been the air-current has been kept too far from the face of the workings. A part of this is owing to incompetence on the part of the mining bosses, and who has always ready some excuse for not having things in proper condition. Such excuse, generally, being the superintendent refused help and material. Which, upon further inquiry, I have found, in many cases, true. Thorough ventilation is the principle thing in a mine, and it should form the chief study of those in charge of mines how to accomplish it, for a mine is nothing if not well ventilated. Much improvement has been made in this direction during the past year, by building furnaces and opening shafts, as will be seen by reference to another part of this report; but much yet remains to be done before all the mines are in a satisfactory condition. These improvements have been made at some expense to the operators, and much time and attention, on the part of the inspector, to see them completed in a satisfactory manner.

I would here remark to operators about to build furnaces or erect fans, be sure and have them of sufficient capacity for future wants of the mine, as a mistake cannot be made by having too much ventilation.

The Penn Gas Coal Company mines are situated in Westmoreland county, and are eight in number, four of which have been operated the past year very steadily, giving employment to upwards of eight hundred hands. No very extensive improvement has been undertaken the past year, but everything has been kept in as good order as possible, with a view to successful mining operations. All these mines were visited during the year, and found in satisfactory condition. The mines were fully described in my last report.

Shaft number two is a very extensive mine, and its workings embrace twenty-four headings at work. The roof is faulty and troublesome, and explosive gas is generated here in large quantities, and in removing pillars, it is sometimes found necessary to have resort to the use of the safety-lamp, for protection against accidents from explosions. The same is also true in opening new headings, where the gas is met with in its pure state. In a mine so extensive as this, it is no small task to carry the air to all the workings in sufficient quantities to properly ventilate every working place, yet, by a system of dividing and sub-dividing, the air is made to circulate in such a manner, that all are ventilated satisfactorily. By the system of splitting, the air ventilation has been doubled here with the same fan power, thus proving the advantage of large, roomy air-courses in mine ventilation.

At the bottom of the shaft there is kept a barometer and thermometer, for use of the officers of the mine. These instruments are almost indispensible in a mine like this, as every change of the barometer both affects the ventilation, and also the amount of gas escaping from the coal strata of the mine. Air measurements at the outlet showed forty-six thousand feet per minute.

Penn Gas Coal Company mine, No. 4, was visited in July, and shaft No. 1 in October, and after full examination, found in good working order. But little explosive gas is generated in these mines, but there is some carbonic acid gas generated. However, both are well ventilated, shaft No. 1 by fan, and No. 4 by a powerful furnace, which render both mines in first-class condition.

Coal Run, owned and operated by the same company, was visited and thoroughly inspected October 1. Mine consists of two drift-mouths, one being used as loaded, the other as empty track. There are also several openings at the outcrop of the coal field, which answer the double purpose of traveling road for the workmen on entering and leaving the mine, and also for the admission of air for ventilation. The workings here are not so extensive as at some of the other mines of this company, and besides five main-headings, embrace eleven cross-headings, the system adopted being the same as at the other mines, double-heading. They are also driving a third heading alongside of the two lower main-headings. This is intended to be used as a return air-way to the furnace, for the whole of the mine. The ventilating apparatus is located about one hundred yards from the pit mouth, and consists of shaft, brick stack and furnace, the capacity of which is about twenty-five thousand cubic feet of air per minute, which is well distributed through the whole of the workings. The amount of air in circulation was, at the face of the working, a little over fourteen thousand feet per minute, and at the outlet twenty-six thousand three hundred cubic feet per minute, were passing through the furnace.

About one hundred and fifty persons are employed here, the mine having been run constant during the past year, and the out-put has been large.

At all my visits, this mine has been found fully up to the requirements of the law, and I have always considered it one of the safest and best ventilated in the district. In all visits made here, I have never found any explosive gas, and in conversation with the mining boss, Samuel Cleland, he has informed me none were generated here, at least not in quantities sufficient to be dangerous. Yet on the morning of December 29, 1879, two lives were lost and one person injured by an explosion of carburretted hydrogen gas. This explosion of gas in this mine was a surprise to everyone, as much so to me as anyone, for I had full confidence in both the mining boss and the safety of the mine.

After being notified of the sad event, by the company's manager, Mr. Wilson, I proceeded, next morning, to the mine, and made an examination into all the circumstances attending the cause by which these two men lost

their lives. I found all the officers of the company ready and willing to render me all the assistance in their power, in order that a full investigation into the circumstances attending the explosion might be had. Upon entering the mine nothing unusual occurred until the spot where the dead body of Samuel Kistler had been found the day before by the party of workmen, who went in to look for the victims. Here a stop was made, and on looking around I picked up a miner's cap, said to belong to Kistler. Proceeding to No. 12 heading, I found that the force of the explosion had shattered the door, and several stoppings between the main headings had been blown out. These had been repaired and a new door hung, and the air current traveling its regular course, although these stoppings had been put up they were not completed, and there was not the full amount of air in circulation, owing to leaks, &c. The door at the foot of thirteen headings had not been put up, but a rough brattice had been erected in its place. Neither had the stopping in pillar, between the thirteen headings, been put up. This is the place where the explosion took place, and where Kessler's dead body was found. The thirteen headings were examined up to the face, and both were clear of explosive gas. The main-headings were next examined, with the same results. The face of the lower face main-heading was forty feet past the break, through the upper heading, about sixty feet past it. I then took an air measurement in the break through, and found there were two thousand three hundred and twelve feet per minute. The engineer, Mr. Wolf, informed me the usual quantity passing here is about five thousand cubic feet per minute, and, as mentioned above, the deficiency was due to leakages in those stoppings which had replaced the old ones, destroyed by the explosion. I next visited the furnace, and found it in operation. Air measurement here showed twenty-three thousand eight hundred cubic feet per minute were passing through the furnace.

Upon further investigation into the cause of this accident, the following facts would appear. Samuel Cleland, the mining boss, on being questioned, said: The furnace had received the same attention that week's end as at other times, and that none of the miners had ever complained of bad ventilation. The main-headings and No. 13 headings had been standing for five years, and during that time no gas had ever been seen there. About two weeks ago these four headings were started up, a man being put in each heading. Kessler, working in thirteen, where he met the gas on going to work at four o'clock, A. M., Monday morning, the 29th of December. Samuel Kistler and Cyrus Frye, together with a little son of Frye, were going along the main-heading, and were about one thousand feet from Kessler when the explosion occurred. Kessler was burned to death, whilst Frye was injured, and Kistler killed instantly, by concussion, neither being burned. On Saturday afternoon, the 27th, the man who worked in the upper main-heading, informed the mining boss that he had that day cut a clay vein, which was making a good deal of water, but said nothing about gas being seen. This clay vein having been cut before, with no serious re-

sults, no further notice was taken of it until the accident occurred. After full investigation into this matter, I am fully satisfied that the accumulation of gas came from this clay vein, as well as the surrounding coal strata, and that deranged ventilation caused its accumulation.

Deranged ventilation might occur from two causes. The accidental or careless leaving open of a door, which would shut off the supply of air to that part of the workings, and thereby allow the gas to accumulate. Or it might occur by neglecting to attend to the furnace, by which ventilation would be reduced considerably in quantity, but would not cease altogether, as there is considerable natural ventilation here when the furnace is out. The evidence, by the workmen examined before the coroner's jury, went to show that the usual attention had been given the furnace as at other times, and the fact that the door at No. 12 headings had been repeatedly found open in the morning by workmen going to work, served to strengthen the opinion in the minds of the jury, that either this door, or the one on the chute, had been left open on the night of the 27th, and had remained open for thirty-six hours, which would allow time for the gas to be accumulated, by shutting off the supply of air. The door at No. 12 was fitted with a latch, and when it was thrown open against the post, the latch would catch, and hold it open, but when the latch was lifted, the door would fall shut of its own weight. This latch was put on the door, for the purpose of relieving the trapper-boy of holding open the door whilst a trip of wagons were passing.

I am of the opinion that either this or the chute door, or both, had been left open accidentally or carelessly. The chute door might have been left open by the drivers on making their last trip. The door at No. 12 might have been left open either by the trapper neglecting to close it on the last trip, or it might have been left open by some of the miners on leaving work, as over forty persons had to pass this door night and morning on going to and from work. The idea that these doors were propped open with a malicious intent, as hinted by some of the press reports, is simply preposterous, as that would go to show that some one had a knowledge that explosive gas was generated into those workings, whilst all the evidence go to prove the contrary to be the fact. While workmen do many things carelessly, and without thought of the consequences that follow, yet I think it a very unjust reflection on the miners to say that they would be guilty of such an act. The circumstances surrounding this accident are shrouded in considerable mystery, and will forever remain so, but the lesson taught by this sad event will be long remembered both by the operators and workmen. It shows the necessity of greater caution, both on the part of the mining bosses and operatives. It ought to be a well known fact to workmen never to open a door without closing it again, and that every door should be closed with as little delay as possible. The following is the verdict of the coroner's jury in the above case:

INQUISITION.

COMMONWEALTH OF PENNSYLVANIA, }
Westmoreland County, } *ss:*

An inquisition taken and indented at Irwin Station, in the county of Westmoreland, on the twenty-ninth day of December, in the year of our Lord, one thousand eight hundred and seventy-nine, before me, L. Winsheimer, coroner of the county aforesaid, upon the view of the body of Samuel Kistler, who was killed by an explosion in the Coal Run mine of the Penn Gas Coal Company. This inquest being held pursuant to the provisions of the act of Assembly of April 18, A. D. 1877, on the body of Samuel Kistler aforesaid, then and there lying dead, upon the oaths of Eli McCormick, S. D. Sauffer, C. H. Sehram, W. A. Stewart, John Q. A. McCormick, and Filmore Steel, good and lawful men of the county aforesaid, who being duly sworn and affirmed, to inquire into on the part of the Commonwealth, when, where, how, and after what manner the said Samuel Kistler came to his death, do say, upon their oaths and affirmation, according to the testimony of the witnesses, that the aforesaid deceased came to his death by the effect of an explosion of gas in the mine aforesaid, caused by the accidental firing of gas, the accumulation of which resulted from deranged ventilation, this being caused either by the careless or malicious leaving open of a door or doors in said mine, by a person or persons to the jury unknown.

In witness whereof, as well the aforesaid coroner, as the jurors aforesaid, have to this inquisition put their hands and seals, on the day and year, and at the place first above mentioned.

L. WINSHEIMER, *Coroner.*
S. D. SAUFFER,
C. H. SCHRAM,
W. A. STEWART, JR.,
ELI MCCORMICK,
JOHN Q. A. MCCORMICK,
F. STEEL.

This was the most serious accident that occurred in my district the past year, and is one that took every one by surprise, as the mine has always been regarded as perfectly safe, and free from explosive gas, as it is well ventilated, and in as good condition every way, as any mine in the district.

The Westmoreland Coal Company's mines are situated in Westmoreland county, and are seven in number, four of which have been operated the past year. These are the Southside, Northside, Spring Hill, and the Foster slope. The latter is at Penn Station. The Southside, Northside, and Spring Hill, have been operated very steady the past year; the Foster slope about half time. When in full operation they employ altogether between five and six hundred men. All these mines were fully described in my report of 1878, and it is, therefore, unnecessary to repeat it here. The Southside mine was visited and inspected on June 12, and after a careful

examination found in good condition, and the ventilation somewhat improved. A good deal of improvement has been made in the shape of new headings and air-ways. At the face of the workings a very good shaft has been sunk nine feet in diameter and one hundred and thirty feet deep. All the work of this shaft was done from the inside. This shaft was sunk to improve the ventilation, and here the company intend to build a model furnace from plans designed by G. C. Hewett, the company engineer.

The Northside mine has been improved by driving new headings in a new coal field and opening up water and air-ways. Coal is hauled from the back hill by a locomotive, the tunnel through which it is hauled being about two thousand yards long, and is ventilated by a steam fan. The capacity of these four mines is about two thousand tons of screened coal daily. They are sinking a slope at the Westmoreland shaft, and pumping out the water, with a view of putting it in operation at an early day.

The Keystone Coal Company, limited, situated at Hanlin's station, on the Pan-handle railroad, in Washington county.

This is a new enterprise commenced last summer, since which time things have moved along very fast. The company was organized about a year ago, and has since been engaged in developing the property, with a view to early mining operation. Work was commenced on the outside, by surveying the coal field, some two thousand five hundred acres, and laying out road from the main line to the foot of the incline plane, about one thousand yards long. This has been graded, and laid with sixty pound iron rail and sawed ties, and an even grade secured, with all the necessary siding required for a large business in mining and shipping coal. At no distant day they intend to extend this branch further up the ravine, where another drift will be opened. They have built a new tipple, incline plane, check-house, and all the other necessary improvements for mining coal. The incline plane is supplied with wire rope. Iron road, laid with good white oak ties. The mine consists of three openings, all drifts, in the Pittsburgh seam, which here lies one hundred and twenty feet above the railroad. Coal about four feet thick. The underlying strata next the coal, is composed of hard fire-clay. The overlying strata a hard sand rock. Between this rock and the coal bed lies a slate, corresponding to the slate on top of the coal seam on the Monongahela river district, but near the outcrop appears softer than on the river. It is calculated that the winnings from these three openings will be about five hundred acres, and it is intended to run them one hundred yards apart, making cross-cuts at convenient distances. The cross-headings will be run from the main-heading, on the raise of the coal seam. The company has built a number of dwelling-houses for the accommodation of their workmen, and will own all the rolling stock to be employed in the business.

The point of connection with the Ohio river, will be at a place opposite Steubenville, on the West Virginia side of the Ohio river. Here great improvements have been made, consisting of railroad, tipple, &c. The

distance from the mines to the river is seven miles, all down grade. The location of the mines is good, both for railroad and river shipping, more particularly for river shipping, as by this arrangement coal can be shipped from these mines, when that cannot be done from Pittsburgh, on account of low water, and then one hundred miles of the worst part of the Ohio river is got rid of. The tests of this coal, made by experts at Cincinnati and Columbus gas-works, prove it to be one of the best in the whole country for gas-making purposes.

There are three coal seams here. The other two have not been developed to any extent, and their quality are unknown, but are known to extend all along the company's coal front, over two miles long. They expect to commence shipping about the middle of January, 1880. After the mines are fully opened, they expect to employ a large number of men, and preparations are making for doing a large business in mining and shipping coal.

The Camp Hill Mines, owned and operated by David Steen & Sons, are situated at Mansfield, Allegheny county.

This is a drift opening, employing about one hundred and fifty men and boys, and has been operated very steady the past year, shipping a large amount of coal to the Pittsburgh market, where the coal yards of the company are located. The mine is well and favorably located on a short branch from the main line, built by the company.

The main heading is eight feet wide and six feet high, with framed pit mouth. The workings have been greatly improved the past year by opening three new cross-headings and driving eight hundred yards of double main heading. These headings have been advanced across the company's line, in order to connect with an air and water course, commenced last spring, on the south side of the coal field, and which is not quite completed. Considerable difficulty has been met with in developing this field. When the water course was commenced on the south side, it was expected the bottom would raise sufficient to allow the mine to drain itself by natural gravity, but, after driving about four hundred yards, it began to dip so fast that to maintain a level the coal had to be left until the whole thickness of the seam was run out. Work progressed further by continuing to drive in the strata above the coal, for another hundred yards, when, the strata showing no rise, it was abandoned for the present. While this was going on, work from the inside was progressing favorable until a point within one hundred and eighty yards of connecting was reached. Here clay veins were cut and large quantities of water met with, causing much trouble and expense.

The improvements to ventilation are a shaft stack and ventilating furnace. The shaft and stack combined are seventy-one feet high, the furnace is thirty feet long by six feet wide, with grate bars seven feet long. This furnace is located near the pit mouth, and has a capacity of twenty-six thousand cubic feet of air per minute. The air is received at the west side of the workings, at No. 12 cross-heading, circulated through

all the cross-headings and returned by the main-heading to the outlet. This being a dip mine, hauling was found to be very expensive with mules, there being a gradient of sixteen inches to the hundred feet to haul against. With a view to cheapen the hauling, machinery has been introduced, and the tail-rope system adopted, and as the distance that the coal has to be hauled is nearly a mile, this required about three miles long of rope, when stretched in a single line. The machinery was furnished by James Millholland & Co., of Pittsburgh, Pennsylvania, and is completed in good, substantial manner, and is placed directly opposite the pit mouth and between the empty and loaded track.

The engines are 60-horse power, with two cylinder boilers attached. The main rope is five-eighths steel wire. The tail rope half inch steel wire, and the drums, two in number, are five feet in diameter. The drums are connected with the shaft by means of clutch gear. The hauling road is laid a part of the way with 16-pound rail, the other part with 30-pound rail, and wooden rollers, five inches in diameter, are placed forty feet apart. The main rope runs in the middle of the main track, the tail rope being carried partly along the side and partly over head. The hauling road is a straight line for eight hundred yards, then a curve of eighteen degrees, with nearly a straight line again for four hundred yards more, where the wheel is placed around which the rope winds. Here there is a reverse curve, and four hundred yards more hauling road, and it is intended to extend the rope down to the lowest cross-heading at an early day. Some difficulty was experienced in getting the ropes to work around these curves, but by placing sheaves at the first curve, and a wheel at the second one, it is thought it will work around both of these curves satisfactory. The introduction of this machinery will be a great saving to the company, as by its use they are able to dispense with the services of eight mules. Twenty-five pit wagons are hauled each trip. The capacity of the engines being fifty wagons of two tons each. The engine goes at a speed of about one hundred and twenty strokes per minute, and a trip can be made every thirty minutes.

Other improvements, of an important character, have been made here the past year, with a view of putting the mine in a good condition for mining and shipping coal. These improvements have been made at a cost of eight thousand one hundred and twenty-five dollars.

The Imperial Coal Company mines, two in number, are situated one at Beach Cliff, the other at Montours City. The Beach Cliff mine was opened in the latter part of 1878, when operations were commenced on the Branch road to the mines twelve miles long. This road was built at a considerable outlay; and two locomotives put on the road. The improvements at the mines are a tipple incline plane, hoisting engines, and all the necessary side track for coal shipments. The mines were opened by driving double-headings thirty feet apart on the face of the coal, cuts being made through the pillar for air about every hundred yards. Cross-headings are turned every one hundred and fifty yards. These are single and are connected by

face-heading or air-course every one hundred and fifty yards. At the time of my visit there were four cross-headings at work. They have sunk a shaft at the face of one of the cross-headings, and are building a good ventilating furnace. I found the mine in fair order considering the time they had to make the improvements.

The works at Montours City were in about the same condition as the lower works, and about the same progress had been made at both places. The coal seam here appears to be more than the average thickness, and of fair quality, and the company expects to ship large quantities of coal in 1880. Other extensive improvements are under way, building houses, coke ovens, &c. At present they are employing nearly two hundred men. Both these mines are in Allegheny county.

The mines owned and operated by the New York and Cleveland Gas Coal Company are seven in number. Plum creek number one and two, Sandy creek number one and two, Oak Hill number three and four, and the Duquesne mine, the last has been bought this year, repaired and put in operation. The Plum creek and Sandy creek mines are in Penn township. The Duquesne and Oak Hill number three are in Wilkins township, and Oak Hill number four in Patton township, Allegheny county. They are all drift openings, at an elevation of from three to four hundred feet above the river bed, the coal seam being the great Pittsburgh vein.

The Duquesne mine was bought in the summer, when a large corps of workmen were started to put things in condition for a large business. The improvements thus undertaken were of an extensive and substantial character, both inside and outside. The branch road from the Pennsylvania road to the mine has been re-constructed, the old road being removed and replaced by double track, laid with sixty pound steel rails, new ties, frogs, and switches. They have also built a new tipple-house incline plane and check-house. Incline plane is double track, laid with forty pound rail and sawed ties six by eight inches. The plane is seven hundred and forty-five feet long, built on a gradient of twelve degrees. The drums are double, twelve feet in diameter, and is supplied with two steel ropes, one inch in diameter, eight hundred and fifty feet long each. The inside hauling roads have been repaired, well ballasted, and the mine thoroughly drained. To accomplish this required about two thousand yards of drains to be cut, a new pit mouth to be put in to allow the water to be discharged by natural gravity. This was a much needed improvement, and has rendered the drainage complete. The hauling roads are about twenty-five hundred yards long. There are six cross-headings at work, two of them are ventilated by small shaft and fire basket. Nearly all the others are open to daylight. The ventilating arrangements are only temporary, and will be replaced by more effective apparatus as soon as required. The main heading driven in the coal seam has a gentle slope to the south-east, and is about sixteen hundred yards long, and is laid with forty pound rail, here the old company used a locomotive engine to haul the coal from the main pit mouth to top of the incline plane.

The engine was too small to do the work required, and some difficulty was experienced on that account through break downs, &c. To haul the coal through this tunnel they are contemplating erecting stationery engine, with front and tail ropes, and an excellent opportunity is here afforded to put it in practice.

The improvements at Oak Hill, No. 4, are of a substantial character to ventilation. They consist of shaft and ventilating furnace, and were built at my suggestion. The shaft is sixty-three feet deep, eight feet in diameter, with stack thirty feet high. The dimensions of furnace are as follows: length of main arch, twenty-six feet; width, nine feet six inches; thickness of walls, twenty-four inches; height of arch, ten feet; length of inside arch, sixteen feet; height, eight feet six inches; width of inside arch, eight feet; length of grate bars, six feet; space between the bars, one inch; space between the two arches, nine inches. The furnace has no side drafts, but air space above the fire arch of nine inches. Fire arch is constructed of fire-brick, main arch constructed of common brick, foundation of stone-work. I have not seen it in operation, but think its capacity will be over forty thousand feet per minute. Other improvements of an important character have been made here the past year, and the mine has been operated steady, employing upwards of two hundred hands. The capacity is about fifteen thousand bushels of lump coal per day.

No. 3, employs about sixty-five hands and three mules, who are chiefly engaged in pillar work, as there is very little solid coal remaining here. It has been operated constantly the past year, with a view of exhausting the remaining coal as soon as possible. There is a good furnace here to supply air, but carbonic acid gas is given off in large quantities, and notwithstanding a man is kept constantly at the furnace, whose business it is to mine the coal, and keep a good fire, yet the air at times will become foul, although there is more air in circulation than is required by law. Air measurement showed ten thousand four hundred and seven feet per minute. An examination found it in fair condition, hauling roads dry, and in good order.

The Sandy Creek mine has been improved the past year, by driving a number of new headings and air-ways, cutting drains, &c. They have improved ventilation by erecting a good ventilating furnace, with shaft. These were constructed about the center of the coal field. The circulation produced by the furnace, is drawn in two divisions to the outlet. Besides the main-heading, there are six cross-headings, and one hundred and forty men are employed. This mine generates a good deal of carbonic acid gas, and as long as natural ventilation was relied upon, ventilation remained defective. There is only one way to deal with a mine like this—that is to send a sweeping current of air through all the workings—which can only be done by applying artificial means, such as a good fan or furnace provides. There are a number of mines in my district, where the miners have been suffering through bad ventilation for years, without a remedy, and the remedy in this case did not come any too soon to protect the health of

the workmen. This mine has been operated constantly the past year, with a capacity of twelve thousand bushels per day. This company owns the greater part of the workable coal fields in the three townships, and in 1879, mined and shipped to market, nearly three hundred thousand tons of lump coal, and has paid the highest wages for labor.

The Wood mine, operated by Wettengel & Gormley, is situated in Allegheny county, and is a drift opening. On February 28, I visited the mine and found the ventilation very defective, chiefly owing to a large amount of carbonic acid gas escaping from the old working, and there not being sufficient air in motion to carry it off. I gave instructions to have a shaft sunk and a good ventilating furnace erected. I again visited the mine on June 26, and found my instructions had been carried out, and the furnace in operation. The furnace is six feet wide and seventeen feet long, and supplies ten thousand cubic feet per minute. All the workings were found in good condition. Forty-eight hands and two mules are employed, and the mine has been operated very steadily this year. Capacity, four thousand bushels per day.

The Saltsburg mine at Fairbank's Station, Westmoreland county, is a drift opening, and employs seventy-five hands and four mules. The coal seam is six feet thick, through which run several bands of slate. During the last year the old furnace, which was too small and badly located has been replaced with a new shaft and furnace. The current of air produced by the new furnace measured sixteen thousand three hundred and eight feet per minute at the outlet, which is ample and sufficient to ventilate the mine. The drainage is very good. They have about three miles of iron road and eighty pit wagons in use. They are also opening a new drift into a large body of coal, which Mr. Robinson, the superintendent, informs me is of good quality. Capacity, three hundred tons per day.

Nixon mines, operated by the Chartiers Valley Coal Company, is located in Allegheny county. This is a drift opening, and in the last year considerable improvement has been made, both inside and outside. The mine consists of three headings and an air-course, running parallel to the main heading. The ventilation has been improved by new shaft, stack, and ventilating furnace. The shaft and stack combined are seventy feet high and eight feet in diameter. The furnace is six feet wide and twenty-six feet long. A test showed the capacity of the furnace to be twenty-four thousand seven hundred and fifty feet per minute, passing through the mine. The company has built some new rolling stock, blacksmith shop, and wagon shop this year, and the mine has been operated steadily, except when prevented by strikes, &c., and has a capacity of five thousand bushels per day, giving employment to about sixty-five hands.

The Black Diamond, operated by Lindsey & McCausland, is located near the Nixon mine, in Allegheny county. Last year considerable improvement was made to the outside, this year the inside has been much improved and a larger force of men employed. At the beginning of the year new

air-courses were commenced and continued to completion. A number of drains have been cut and the roof in the main heading cut down. To improve ventilation a new shaft, stack, and ventilating furnace has been built. The mine is now in good condition, and employs thirty-five to forty hands, with a product of three thousand bushels per day.

Smith's mine, operated by Smith & Moore, located in Washington county, is a drift. It consists, at present, of one main heading, two cross-headings, and an air-course along the line to which the cross-headings are driven. The ventilation here has been very unsatisfactory until September last, when I compelled the parties operating it to sink a good shaft and erect a good ventilating furnace.

On my first visit here there was a small furnace, about the size of a good sized bake oven, located at the mouth of the air-course, and the miners said there was sometimes very little fire in it. The coal seam being hard to mine, there is always a good deal of blasting going on, and the mine was constantly full of powder smoke.

The system adopted here has very much injured the mine, and last spring one of the cross-headings were partly closed by a squeeze, and for some time the mine was deprived of what little ventilation the furnace produced. This was remedied to some extent by cutting around the fall through to the air-course, and circulation was renewed. While this was being done, a new shaft and ventilating furnace were being constructed. The shaft is seven feet in diameter, fifty-one feet deep, with wooden stack. The furnace is twenty feet long, six feet wide, with six feet grate bars, and the ventilation is now ample. Five visits have been made to this mine this year.

Brier Hill mine, located in Washington county, employs fifty men, and has a capacity of two hundred tons per day. It is a drift opening, and was leased by the present operator, J. D. Santers, this year, who has operated it very steady since he commenced. On examining the mine, the ventilation was found defective, there being no ventilating furnace nor any other artificial means adopted to put air in motion. There was very little air in circulation. There was also some black damp and smoke from the miners' lamps present. I asked Mr. Santers to remedy this by building a furnace, which he complied with. He now reports the ventilation very good.

National mines, located in Allegheny county, have been leased this year by the National Coal Company, limited. Ventilation and drainage has been improved by building stack on the top of shaft; also, by widening bottom of shaft, and putting in new pump and boiler. The amount of air circulating through the mine on April 1, was twelve thousand two hundred and forty-five cubic feet per minute. There is some explosive gas generated here, but no accidents have happened from that cause. About seventy-five hands and eleven mules are employed, and has a capacity of three hundred and fifty tons per day.

Lemont Mines are located in Fayette county, and operated by Hogsett, Hanna & Co. This is a slope sunk partly in the rock and partly in the coal strata, on a dip of about fifteen degrees.

The ventilation has never been satisfactory here, but as often as spoken to about it, Mr. Hogsett has promised to remedy it, and now informs me, by letter, that all my instructions have been carried out. The system of mining adopted here is simply ruinous. Main-heading and cross-headings are driven, and rooms are turned without any provision being made for ventilation by driving air courses. And when I first visited it there was neither door or stopping to direct ventilation into the workings, and I found the miners working in a suffocating atmosphere, three hundred yards from any air-current. I have ordered air courses to be driven parallel to the main-headings, and a number of stoppings and doors to be built, and the air circulated to the face of the workings. The traveling road only extended a part of the way into the mine, and the men were compelled to travel a part of the way on the hoisting slope. This I have had remedied by having the road completed to the lowest flat heading, thus giving the men a clear road in and out, without going into the slope. The mine has been been operated very steady this year, except a short time lost by burning of engine-house last summer.

Mount Braddock mine is operated by Colvin & Company, situated in Fayette county. This is a slope sunk on the pitch of the coal seam, hoisting being done by steam power. I have had some trouble with this mine to get the parties who have operated it to conform to the requirements of the law, and five visits have been made during the past year to see that my instructions were carried out. It has been a hard and expensive one to operate, and that has often been urged as an excuse why it was not done more promptly. I have visited it frequently and urged its improvements. Until lately there has been no safe traveling road, the miners being compelled to travel up and down the hoisting slope the greater part of the way. In July I gave instructions to have a separate road provided for ingress and egress, fearing some accident might take place from breaking of chain, or from wagons. The heat from steam pipes and escaping steam make it difficult to see sometimes. But before the road was completed an accident occurred to Henry Helman, he being caught in front of a trip of wagons. His injuries were of such a nature that it was found necessary to amputate a leg, which resulted in death five days after the accident. The traveling road has since been completed, and the ventilation carried near the face of the workings. There are employed at the mine, inside and outside, fifty-five hands, and it has been operated steady the past year. The coal is rather poor in quality, and much troubled with rolls and horseback in the bottom.

Rock Run mine, owned and operated by W. J. Snodgrass. Located in Allegheny county. This is a new colliery, having been started in the fall of 1878. I visited it in April and found they had built about half a mile of

outside road. Opened two new drifts; mouths well framed with good oak timber. They had also driven some four or five hundred yards of heading. From what I saw on this visit, the intention is to adopt the single heading system here, with room and pillar. From the position of the coal seam in the hills, I presume it will be easy to drain and ventilate. The coal is being run over the old incline plane, formerly used by Gulp & Gamble, and shipped by Monongahela river.

Amity mine, owned and operated by J. C. Risher & Co., located in Allegheny county. No. 1 is nearly exhausted of its coal; the pump has been removed, and a ventilating furnace built in its place. No. 2 mine has been improved by erecting a good ventilating furnace at the shaft sunk at the upper end of the workings. Both these mines are now in very good condition. They have the best system of handling coal here in use in my district, and are nearly perfect. All the screening is done at the top of the hill—the lump, nut, and slack coal being run down the plane in separate wagons, and dumped over separate tipples. About two hundred and forty hands are employed.

Georges mine, operated by William Berry & Co.; situated in Washington county; is a drift opening. This is a new mine, having been commenced in 1878, by another company. It was not operated, however, very extensively by them; but since the present firm took hold they seem to be pushing the work very vigorously. The main heading had progressed but a short distance before a swamp was met, which very much discouraged the operators. The large amount of water had to be got rid of, and a watercourse was driven out to daylight. As the main-heading progressed it began to rise. This revived the drooping spirits of the company, who are all working men. The outside improvements are tipple side track and scales for capacity of two hundred tons per day. Inside improvements are shaft and good ventilating furnace, with about seven hundred yards of heading open. They have also erected a stationary engine and boiler at the pit mouth, and are hauling coal by steam power. Fifty hands are employed, and they are shipping about one hundred and twenty-five tons per day. The mine was found to be in fair condition, both as to drainage and ventilation.

Grant mines, operated by James Jones & Co., located in Chartiers borough, Allegheny county. This is a drift opening, and has been leased this year and put in operation. Some improvements has been made to the incline plane and tipple. The roads inside were in a bad condition and required attention, before much coal could be run; drainage likewise needed to be attended to. The headings were nearly exhausted of coal, and no provision made for getting a supply by driving new ones. Air-ways were left incomplete, and this state of things resulted in bad ventilation. The men were crowded together, and compelled to work in unwholesome air, in order to supply the demand for coal. This state of things could not be tolerated long, and I compelled the operator to remove the greater part of the men

until the headings could be properly supplied with air. Since that, three air-courses have been driven and a good shaft put down, where a ventilating furnace will be built. It was here, in the month of June, that John West, through gross carelessness, fell a victim to falling slate. Sixty-five men and six mules are employed here. The hauling roads are upwards of two miles long, and the operators contemplate putting in machinery to do the hauling a part of the way.

William B. Huston has opened a new mine just above the Buffalo mine, Monongahela river, Washington county. The outside improvements are a new tipple, brakewater, and the necessary track for river loading. A single track drift mouth has been opened into the coal seam, nearly at the lowest point of the coal field. Some seven or eight hundred yards of headings have been driven. One of the headings struck some workings opened twenty years ago, which were found in good condition. The mine will be conducted on the double-heading system and artificial ventilation employed. At the time of my visit, in May, Mr. Huston had a force of twenty-five hands at work, building, cleaning up, and driving headings.

The Cincinnati mine has been leased by J. S. Neel, repaired, and put in operation. This mine has been standing idle for a year or two. The freshet of last spring washed the tipple out, and when Mr. Neel took hold he found things in a bad condition, both inside and outside. In the inside little or no heading has been driven for years, and what coal was opened nearly exhausted. The air-ways and hauling roads were in bad order. There was considerable water in the mine and ventilation to some extent obstructed. I am not sure that all the evils have been remedied, but at the time of my visit they had a force of men at work setting timber, cleaning up, laying track, &c., and Mr. Neel promised everything should be put in good order. A new tipple has been built and new stack put on top of furnace.

The Pittsburgh and Castle Shannon Fair Haven mine, is located in Allegheny county, has employed this year about one hundred and thirty-five hands, and seven mules. The ventilation has never been satisfactory. There are four or five openings to the mine, but no artificial means being applied, the air current was both feeble and irregular. As the rooms are finished, black damp is given off in large quantities, and during the warm months this interferes with the work of mining, and getting out coal to some extent, and the workmen are compelled to labor in an atmosphere unfit to breathe. I visited the mine in May, and again in August, and found that owing to litigation, a part of the mine had been stopped, and the men put to work in headings, before air-ways had been made. I gave instructions to have the pillars cut through, and doors put up at the mouth of each room. The company are now putting down a shaft, where it is the intention to build a good ventilating furnace, which, I trust, when other matters have received proper attention, will properly ventilate, and render the mine beyond complaint. This mine has been operated steadily this year, except-

ing what time has been lost by strikes, and has a capacity of ten thousand bushels of lump coal per day.

Mansfield Coal and Coke Company mines, situated at Mansfield, Allegheny county; both are drift openings and have been operated stronger this year than for some years past. These mines furnish employment to upwards of two hundred hands, the principal part of them working in the new mine, which was opened in 1878. This mine has been developed very rapidly the last year. It consists of main-heading, and three cross-headings, and the system is known as the "block system." In the fall of last year, a shaft ninety-two feet deep was put down, and a good furnace built to improve ventilation, which had the desired effect. The mining boss has had some difficulty in keeping the mine as well ventilated as it ought to be, the rush of men consequent on the great demand for coal prevented it. The mine has been run very steady the last year, and men have been furnished employment at fair wages, yet this bright sky has a dark cloud hanging over it. Two valuable lives have been lost here, both victims to falling slate. The law had placed safe guards around them, but the advantage of a plentiful supply of timber was lost, and death was the result. These two mines have a capacity of fifteen thousand bushels per day of lump coal.

Coal Bluff, situated in Washington county, and operated by Patterson & Co., is a level drift opening. The freshet in the river last spring washed out the river tipple, and, therefore, no attempt has been made by the company to ship by river. One hundred and twenty hands are employed at the mines, and a large number at the South Side Pittsburgh, where the coal is shipped and delivered from platform to teams, of which the company has quite a number constantly engaged. Like a great many other mines, this generates both carbureted hydrogen and carbonic acid gases. As the new work is opened, carbureted hydrogen is given off. When the cross-headings are worked out, carbonic acid accumulates, which must be dealt with in a proper manner, or danger to health and life will be the result. This mine has, for the last few years at least, been well ventilated by the old furnace being kept in constant use, but the workings very much enlarged, and being constantly pushed ahead, required greater furnace capacity, and a new shaft stack and furnace has been completed, and although not as satisfactory as it might have been, yet is a little better than the old one. There are eight cross-headings at work here. The mine has a capacity of ten thousand bushels per day.

Hampton mines, operated by John McIntyre, located Allegheny county, is a drift opening, and employs upwards of one hundred and sixty men. It has been operated very steady the last year, and as the old coal field is nearly exhausted, a new field was bought and operations commenced. This new field consists of three hundred and twenty-five acres of coal, and lies directly alongside of the present workings. It is the intention of the owner to make this a model mine, and with that end in view a survey was made, and the workings laid down on a map. Double-heading being the system

adopted. The main headings have been driven seven hundred yards nearly on the face of the coal, and a good grade secured for the hauling roads. From these headings four double cross-headings have been started. These headings are six feet high and eight feet wide, and are laid with twenty pound iron rail and good white oak ties. The ventilation is No. 1, and is produced by a new furnace built this year. Its dimensions are as follows: Length of main arch, fifty feet; width of arch, eight feet; heighth of arch, eight feet; length of grate bars, six feet; width of shaft, eight feet; heighth of shaft and stack combined, seventy-one feet. This furnace is a very substantial piece of work, and will, I have no doubt, furnish a plentiful supply of good air for the mine, and is one of the best in the district.

Ocean mine, operated by W. L. Scott & Co., is situated at Scott Haven, Westmoreland county. This is a drift opening, and employs about one hundred and fifty hands. Owing to strikes and other causes, it has not been operated steady this year. The ventilation has been improved somewhat by addition to furnace and stack. The furnace is badly located, as well as badly constructed. After ventilating the mine, the air circulates through the old workings. Besides gathering up and conveying to the furnace all the impurities generated in the old workings, this increased distance the air is compelled to travel is a great drag on the furnace, and coal is burnt and labor spent to little or no purpose. The remedy for this state of things, lies in building a new ventilating apparatus in a better location, and this I advised the superintendent, John F. Hosack, to do. I visited the mine on July 2, and found things in fair condition. It was here that the explosion occurred, which resulted in the death of Frank Fitzpatrick and his son, through the carelessness of John Thomas, the mining boss. The mine was visited twice after the accident, and submitted to a careful examination, and found to be free from explosive gas, and in good working condition. It has a capacity of five hundred tons of lump coal per day.

Armstrong's mine is situated in Westmoreland county. This is a drift opening, mining coal for the Pittsburgh market. The ventilation here has never been, until now, satisfactory. My first visit here found them ventilating by shaft and small furnace. This had not the capacity to move the required amount of air to properly ventilate this mine. This year, this furnace has been replaced with one much better. The shaft is one hundred and seventy-five feet deep, with a diameter of six feet, and was formerly used for drainage purposes. The new furnace is twenty-three feet long, seven feet wide, and seven feet high. Air measurement showed there was over thirty thousand cubic feet passing at the outlet per minute, and a man is kept here to mine the coal for the use of furnace, and tend to it. This shaft and furnace being located in the old workings, it was found there were a good many leaks to be stopped, as fully one half of the air came through these leaks. I called the attention of the mining boss to this fact, and asked him to remedy it, by building a number of good, stout

stoppings. The benefit derived from this, would be an increased supply of air through the workings. The mine is now in much better condition than ever before. About one hundred and twenty hands are employed. Capacity, ten thousand bushels per day.

The mines operated by A. A. Hutchinson & Bro., are two in number, the Globe mines and the Standard mines. The Globe mines are located near Broad Ford, in Fayette county. Have been operated full time this year, manufacturing coke; and to keep the supply equal to the demand it was found necessary to build fifty additional ovens. The mine has been improved by sinking shaft and building furnace for ventilation. A good deal of carbonic acid gas is generated here, which requires good ventilation to render it harmless. About seventy-five hands are employed here.

The Standard mines are at Mount Pleasant, Westmoreland county. This is a slope five hundred and forty feet long, sunk on an eighteen degree dip. At present it is single track, three wagons being hoisted each trip, but the owners contemplate making it double track, and thus double the capacity.

The mine was bought last spring, when extensive improvements were commenced, and conducted with vigor until completed. They have built a new engine-house and tipple. Two engines, five boilers, and two steam-pumps have been erected. They have also built two hundred of the best ovens in the coke region, and laid down all the necessary road for doing a large business in the manufacture of coke. They have a first class coal field to operate on, and the product of this field stands number one in the market. They have also, at considerable expense, sunk a shaft for ventilation.

Everson mine, operated by Everson, Macrum & Co., located in Fayette county, is a drift opening. Employs fifty-five hands inside and outside, and has been operated steady in 1879. At the time of my visit of 1878 the ventilation was defective, not because there was not the necessary number of openings, but there was no artificial ventilation applied to move the air-current through the workings. This has been remedied by erecting a furnace at the foot of the shaft sunk last winter, which has had the desired effect, and the ventilation is now good.

The Founton mine, operated by William H. Blake, is in Fayette county, is a drift opening. I visited this mine July 10, and found twenty-three men and one boy at work in the most miserable places I ever saw human beings asked to work in. All the headings and a number of the rooms were under water. The hauling-roads about a foot deep with thin mud. The atmosphere was almost one solid mass of carbonic acid gas and nitrogen. So devoid of oxygen was the air that a light would hardly burn. This state of affairs could not be allowed under any circumstances. I immediately notified Mr. Blake to improve it. Since that the men have been removed into better air, and that part of the mine closed. A shaft has been sunk, and a good furnace will be built.

Boyle and Hazlett, two mines, are situated near Mount Pleasant, Westmoreland county, and employ about fifty hands inside, and about the same number outside. The two mines have a capacity of 13,000 bushels per day.

These works have been run very steady this year. Ventilation has been improved by building a small furnace at each mine, and both are drained by steam pumps. At the upper works a shaft has been put down, with all the necessary machinery for hoisting coal, the hoisting slope being abandoned. Both are dip mines, and have been troubled a good deal with water. It was thought the new shaft sunk on the dip would drain a good part of the coal field, and new pumps have been put in. The inside has been improved by driving new headings, air courses, etc. The business of the company has been very much increased, and to meet the demand for coke seventy-five new ovens have been built and put in operation this year.

The Ferguson mine, operated by H. C. Frick & Co., has been cleared of water, repaired, and put in operation. In 1878 a heavy squeeze came on the workings, which closed up the greater part of the mine, and the pump being overpowered with water, it had to be abandoned. During this year considerable improvement has been made. The coke ovens, which were in a ruinous condition, have all been repaired, and a large tank to supply water for the ovens, built. New boilers and hoisting machinery have been placed near the pit mouth. Other outside improvements are new trestle, and dump, and railroad track from pit mouth to the ovens. The inside has been improved by driving new headings, air-ways, and pump for drainage. A traveling road alongside the main slope for ingress and egress for the workmen, has been made, and the mine is now in fair condition. One life has been lost since operation commenced—George Williams—a boy of fourteen, who was employed to ride a mule from the tipple to the coke ovens. He fell in front of the wagon and was instantly killed, December 20. On investigation this appeared to be purely accidental, as the boy slipped and fell directly on the rail, and was run over.

The Summer Hill mine, located in Allegheny county, is a drift, and has been leased this year, by Frank Armstrong, who is now operating it. This mine employs fifty hands, and is in charge of John Duncan, mining boss. It is favorably situated, the coal seam being level with the railroad tipple, no incline plane is needed. Fully one half of the coal field lies to the dip, but the facilities for drainage are fair. Ventilation, never very satisfactory, has been improved somewhat by driving air courses to connect the different headings. A good shaft has been sunk, and they are now erecting a furnace, which, when completed, will render the ventilation satisfactory. About three thousand bushels of lump coal are mined here daily.

Uniondale, operated by J. N. Reid, is situated at Dunbar, Fayette county. This is a slope, has never been in a satisfactory condition, and never been well managed. No provision was made for having the ventilation conducted to the face of the workings, the only object being to get the ovens charged from day to day, no matter what the sacrifice to the health of the miner by compelling him to work in an impure atmosphere. The numerous falls in the mine had closed the second opening. These defects have been remedied, and a new opening and traveling road made to the foot of the slope for the use of the men on entering and leaving the mine.

The Allaquippa, situated on the Monongahela river, Allegheny county, is a drift opening. Whigham, Bailey & Co., operators. This being a river mine, has not been operated steadily this year. The average number of hands employed will be about one hundred and fifty, with a capacity of thirteen thousand bushels per day. In my report last year, mention was made of defective ventilation here, I suggested to the owners that a good furnace be built at the foot of the new shaft, which has been done. This furnace is twenty-four feet long and eight feet wide, is well constructed, and supplies all the air required for the mine.

McChain mine, located at Finleyville, Washington county, is a drift mine and has been opened this year by the owner, Jacob Legler. At the time I visited it sixteen men were employed, which number has since been considerably increased. It consists of but two headings, and had but one opening, and there was no air in circulation, black damp being present. I directed Mr. Legler to make a second opening, by sinking a shaft near the face of the butt heading. This was done as soon as possible, which relieved the men, giving them a plentiful supply of fresh air. The owner now reports the mine in good order and employment constant for the workmen.

Mount Equity, situated at Riddlesburg, Bedford county, owned and operated by the Riddlesburg Coal and Iron Company. This is a new mine and was opened by driving a rock tunnel about three hundred yards, which struck the coal basin on a south pitch. From here a heading was commenced, run a short distance, and a small shaft put down for ventilation. Several headings were started to test the new found coal field, but the coal in some of them did not prove satisfactory and were abandoned, the coal proving faulty. One of the headings struck a fault, which pitched the coal up sixteen feet, this had been crossed and a better quality of coal secured. Should this prove satisfactory, a new drift will be put in and a railroad track built from the blast furnaces to the pit mouth. This far the enterprise has not been very successful, but the greater part of the labor has been spent along the outcrop, were the measures are very irregular and uncertain, and the strata pitching in all directions. The company deserves success, and are striving manfully to gain it. The old mine was examined and found in fair condition. The coal seam is four feet, and about sixty men are employed altogether in and about the mines.

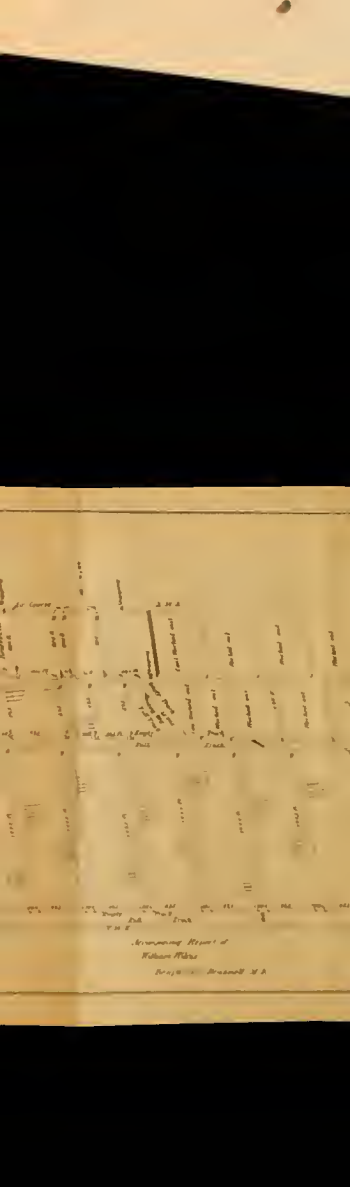
The Pittsburgh and Connellsville Gas Coal and Coke Companies mine is situated at Connellsville, Fayette county. Eighty-three hands are employed inside, and nearly the same number outside as coke drawers and forkers. It consists of shaft and slope hoisting being done at both places. The water is pumped at the shaft at the dip of the workings for those workings, the balance being pumped at the slope, six pumps being required to drain the mine of water. The working places have always been kept free of water, and in safe condition, but the ventilation has never been very satisfactory. During the last two years the workings have been extended considerably, and improvements in ventilation have not kept pace with the

progress of the workings. Another trouble here, men would be pushed into headings, and rooms commenced before a supply of air was provided. The worse kind of oil for light allowed to be used, thus filling the mine with smoke. Those things combined render the air oppressive and unhealthy. I asked the company to remedy this by subjecting the mine to artificial ventilation. In September a shaft was put down with this object in view, but no furnace has been built, however, I suppose this will be done in the spring. The mines have been in steady operation the past year.

The Loyal Hanna Coke Works are located near Latrobe, Westmoreland county. Loyal Hanna Coal and Coke Company operators. The works, inside and out, employ about one hundred and eighty men. Two hundred coke ovens are in operation, fifty having been built the past year. The mine has been very much improved by sinking a shaft half a mile south of the hoisting shaft, for the double purpose of improving the ventilation and pumping the water, which has always been a source of trouble, and heretofore it has required three pumps to keep the mine clear of water. The greater part of the working lie on the dip, and the water had to be pumped from one station to another, and the deleterious effects of the water would soon render a pump useless. This shaft was put down in what is believed to be the center of the basin, and a large sump made. To get the water to the foot of the shaft, it required several hundred yards of drain to be cut, some of it seven feet deep. Here a large pump has been set up, capable of lifting five thousand gallons of water per minute to the top of the shaft. To generate steam for this pump, two new boilers has been set up at the bottom of the shaft. These improvements have been made at considerable outlay, and the effect is good ventilation and drainage. These works have been run steady the past year.

The Sandy Run Coal Company mines, two in number, are situated near Hopewell, Bedford county. They are operated by Morley & Langdon, employing about fifty-five hands, and mining and shipping two hundred and fifty tons daily. The old mine was first examined, and found very much improved, with respect to drainage, hauling roads, and ventilation. The latter has been improved by addition to furnace, and new iron stack. The coal seam is from four to six feet thick, of fair quality.

The new mine is located half a mile lower down the railroad, and is opened by drift into the same vein of coal as the upper one, near the bottom of the basin. The main-headings are driven in an eastern direction, the coal pitching to the south. This pitch is very steep, and the wagons hard to handle on such a grade, which makes mining difficult. A short distance from pit mouth, a tunnel running south, has been driven, and coal met with on the other pitch, and hopes are indulged that this may prove a good field of operations. The ventilating arrangements put up this year, are shaft and furnace, which supply all the air at present required for the mine. The railroad to these mines is built on a gradient of two hundred and eleven feet to the mile.



Conard shaft, owned by R. B. Wigton, and Coaldale mine, operated by William H Piper, were visited. Both are situated on Six Mile run, Bedford county. I found that the Conard mine had been operated very little, owing to bad trade, since my last visit, and consequently very few changes had been made.

The Coaldale mine had just been started up, and the mining boss informed me, with very poor prospects. On examining the mine, the ventilation was found very defective. They are working two headings on the dip, and the air course was closed. There was an old furnace, about as big as a good sized bakeoven, but even this was not in use. I notified Mr. Piper immediately. Informed him of the condition of the mine, and asked him to remedy it at once. None of the other mines in this run were at work, and, therefore, they were not visited. The business of mining here appears to be almost dead, as very little coal has been run the last two years, and a great amount of property is going to ruin as fast as possible. The parties interested say the cause of this is to be found in the difficulties met with in mining here, and high freight charges, which has excluded them from the Philadelphia and other markets east of them.

The Waverly Coal and Coke Company's mine is situated at Smithton, Westmoreland county. Has been operated steady. Employing about one hundred and fifty hands and fourteen mules. During the last year the company went into the coke business, and in the summer built one hundred and seven coke ovens, put up engines, boilers, and all the necessary machinery for handling and washing fine coal, slack, &c. The lump coal, after being screened, is shipped to market, the finer grade of coal being made into coke. They had a survey made of the coal field, and a shaft has been located, which will be sunk immediately as soon as the necessary preparation can be made. The present opening is a drift, located above the tipple about four hundred yards, and the location of the shaft is northwest of the drift, on the dip of the coal field. The winnings from this shaft will be considerable, and the shaft will be ten by twenty-eight feet, sixty feet deep.

Accompanying my report will be found a plan of the present and future workings of this colliery, as surveyed by the company's engineer and mining boss, Benjamin Braznell. It will be noted the upper part of the workings are those in operation now by the drift. The lower workings laid down on the plan are proposed to form the shaft workings, and will be connected, as shown on the plan, for convenience in ventilation and drainage. The arrows show the course of the air from inlet, as circulated through the workings to the outlet.

The ventilation furnace built the past year is a good, substantial piece of work, and has a capacity of thirty thousand cubic feet per minute, and the mine is very well managed in every respect. It has a capacity of thirteen thousand bushels per day, and the coal seam is seven feet thick, of good, clean coal.

NAME OF COLLIERY AND POST OFFICE ADDRESS OF COMPANIES IN THE FIRST BITUMINOUS COAL DISTRICT.

NAME OF COLLIERY.	WHERE LOCATED.	NAME OF COMPANY.	POST OFFICE ADDRESS.
Hampton mines,	Allegheny county,	John McIntyre,	Wilkinsburg, Allegheny county.
Plum Creek, No. 1,	do.	New York and Cleveland Gas Coal,	89 Wood street, Pittsburgh city.
* Plum Creek, No. 2,	do.	New York and Cleveland Gas Coal Company,	do. do.
Sandy Creek, No. 1,	do.	do. do.	do. do.
Sandy Creek, No. 2,	do.	do. do.	do. do.
Oak Hill, No. 3,	do.	do. do.	do. do.
Oak Hill, No. 4,	do.	do. do.	do. do.
Duquesne mine,	do.	do. do.	do. do.
Corey's,	do.	J. B. Corey & Co.,	Wood street, Pittsburgh city.
Union Works,	do.	M. Graver & Co., limited,	Duquesne Way, Pittsburgh City.
Weinman's,	do.	Jacob Weinman,	Wilkinsburg, Allegheny county.
Hetter's,	do.	John Hetter,	do. do.
Duncan mine,	do.	William Duncan & Bro.,	Duncan Post Office, Allegheny county.
Rea mine,	do.	Herlam Coal Company,	Monongahela City, Washington county.
Imperial mines, No. 1,	do.	Imperial Coal Company,	Wood street, Pittsburgh, Allegheny county.
Imperial mines, No. 2,	do.	do. do.	do. do.
Bell's mines, No. 1,	do.	Mansfield Coal and Coke Company,	382 Penn avenue, Pittsburgh, Allegheny co.
Bell's mines, No. 2,	do.	do. do.	do. do.
Grant mines,	do.	James Jones & Co.,	Mansfield Valley, Allegheny county.
Camp Hill,	do.	David Steen & Sons,	do. do.
Pittsburgh Union,	do.	Joseph McConnell,	Walker's Mills, Allegheny county.
Fort Pitt,	do.	Fort Pitt Coal Company,	337 Liberty street, Pittsburgh city.
Cherry's,	do.	Morris McCue,	Third and Try streets, Pittsburgh city.
Oak Ridge,	do.	Oak Ridge Coal Company,	Oakdale, Allegheny.
National mines,	do.	Pittsburgh National Coal Company,	Noblestown, Allegheny county.
Laurel Hill,	do.	W. P. Rend & Co.,	413 Liberty street, Pittsburgh city.
Glendale,	do.	S. B. Gregg,	Mansfield Valley, Allegheny county.
Nixon mines,	do.	Chartiers Valley Coal Company,	do. do.
Black Diamond,	do.	Lindsey & McCausland,	Woodville, Allegheny county.
Summer Hill,	do.	Frank Armstrong,	Third and Try streets, Pittsburgh.
Bower Hill,	do.	A. J. Shulte,	Woodville, Allegheny county.
Willow Grove,	do.	T. B. Robbins & Co.,	Midway, Washington county.
Chartiers Gas Coal Company,	do.	James Clark,	Bridgeville, Allegheny county.
Oak Hill, No. 1,	do.	Dickson, Stewart & Co.,	404 Liberty street, Pittsburgh city.
Wood mines,	do.	Wettengel & Gormley,	Thirty-fifth ward, Pittsburgh, Allegheny co.
Nimick,	do.	Thomas Fox,	Thirty-sixth ward, Pittsburgh, Allegheny co.
	do.	John Carlin,	do. do. do.
Venture,	do.	Gray & Bell,	Banksville, Allegheny county.
Coal Ridge,	do.	do.	do. do.
Chess mine,	do.	do.	do. do.
Enterprise,	do.	Hartley & Marshall,	do. do.
Fair Haven,	do.	Pittsburgh and Castle Shannon Coal Company,	South Side, Pittsburgh city.
Keelings, No. 1,	do.	Birmingham Coal Company,	do. do.
Keelings, No. 2,	do.	do. do.	do. do.

NAME OF COLLIERY AND POST OFFICE ADDRESS, ETC.—Continued.

Name of Colliery.	Where Located.	Name of Company.	Post Office Address.
American mines,	Allegheny county,	Jones & Laughlin,	Third street, Pittsburgh city.
Beck's Run,	do.	H. B. Hays & Bro.,	First avenue, Pittsburgh city.
Six Mile Ferry, No. 1,	do.	do. do.	do. do.
Six Mile Ferry, No. 2,	do.	do. do.	do. do.
Beck's Run mine,	do.	Joseph Walton & Co.,	Water street, Pittsburgh city.
Lower Road,	do.	do. do.	do. do.
Upper Road,	do.	do. do.	do. do.
Street's Run,	do.	I. D. Risher,	Hope Church, Allegheny county.
Green Springs,	do.	Thomas Fawcett,	Water street, Pittsburgh, Allegheny co.
Keystone mines,	do.	William H. Brown's Heirs,	do. do. do.
McClusky mine,	do.	do. do.	do. do. do.
Cornell & Werlings,	do.	do. do.	do. do. do.
Old Eagle,	do.	do. do.	do. do. do.
Neel's mine,	do.	William Neel,	McKeesport, Allegheny county.
Coal Valley,	do.	William Stone Heirs,	do. do.
Amity, No. 1,	do.	J. C. Risher & Co.,	160 First avenue, Pittsburgh city.
Amity, No. 2,	do.	do. do.	do. do.
Camden mine,	do.	George Lysle & Sons,	McKeesport, Allegheny county.
Allequippa,	do.	Whigham, Bailey & Co.,	do. do.
Rock Run,	do.	W. J. Snodgrass,	Coal Valley, Allegheny county.
Pine Run, No. 1,	do.	James Lynn & Co.,	Water street, Pittsburgh city.
Pine Run, No. 2,	do.	do. do.	do. do.
Jefferson mines,	do.	Foster, Wood & Clark,	Coal Valley, Allegheny county.
Robbins & Jenkins,	do.	Robbins & Jenkins,	McKeesport, Allegheny county.
Bellvine mines,	do.	Gumbert & Huey,	Elizabeth, Allegheny county.
Lovedale mine,	do.	Wood, Schrader & Co.,	do. do.
Horner & Roberts,	do.	Horner & Roberts,	do. do.
Enterprise mine,	do.	O'Neil & Co.,	do. do.
Fulton colliery,	do.	George Jones' Heirs,	West Elizabeth, Allegheny county.
Wenone,	do.	Skellon & Co.,	Elizabeth, Allegheny county.
Milesville mine,	do.	Robbins, Lynn & Co.,	Water street, Pittsburgh, Allegheny co.
Penny mine,	do.	Lynch & Robinson,	do. do. do.
Youghiogheny mine,	do.	James O'Neil,	Boston, Allegheny county.
Osceola,	do.	Osceola Coal Company,	Greenoak Post Office, Allegheny county.
Alpsville mine,	do.	Alpsville Coal Company,	Duncan Post Office, Allegheny county.
Furnace mine,	Fayette county,	Everson, Macrum & Co.,	Scottdale, Westmoreland county.
Lake mines,	do.	William Blake,	do. do.
Dexter mines,	do.	J. R. Stauffer,	do. do.
Painter mines,	do.	Samuel White,	Connellsville, Fayette county.
Pennsville mine,	do.	A. H. Sherrick,	Pennsville, Fayette county.
Eldorado,	do.	Zuck & Henry,	Connellsville, Fayette county.
Connellsville shaft,	do.	Pittsburgh and Connellsville Gas Coal and Coke Co.,	89 Wood street, Pittsburgh, Allegheny co.
Connellsville slope,	do.	do. do. do. do.	do. do. do.
Wheeler,	do.	Cambria Iron Company,	Connellsville, Fayette county.

NAME OF COLLIERY AND POST OFFICE ADDRESS, ETC.—CONTINUED.

NAME OF COLLIERY.	WHERE LOCATED.	NAME OF COMPANY.	POST OFFICE ADDRESS.
Uniondale,	Fayette county,	J. M. Reid,	Dunbar, Fayette county.
Anchor mine,	do.	H. C. Frick & Co.,	104 Fifth avenue, Pitsburgh, Allegheny co.
Deer Park,	do.	Mahoning Coke Company,	Dunbar, Fayette county.
Hill Farm,	do.	Dunbar Furnace Company,	do. do.
Fergueson mine,	do.	H. C. Frick & Co.,	104 Fifth avenue, Pittsburgh, Allegheny co.
Mount Braddock,	do.	S. Colvin & Co.,	Mount Braddock, Fayette county.
Sterling, No. 2,	do.	Brown & Cochran,	Dawson Station, Fayette county.
Sterling, No. 3,	do.	do.	do. do.
Fayette mines,	do.	James Cochran,	do. do.
Jaekson mines,	do.	Jaekson Mine Company,	do. do.
Tyrone mine,	do.	Laughlin & Co.,	Broadford, Fayette county.
Cochran's,	do.	Cochran Brothers,	do. do.
Henry Clay,	do.	H. C. Frick & Co.,	104 Fifth avenue, Pittsburgh, Allegheny co.
Novelty Works,	do.	do.	do. do. do.
Morgan, No. 1,	do.	do.	do. do. do.
Morgan, No. 2,	do.	do.	do. do. do.
Red Hot,	do.	do.	do. do. do.
Globe mines,	do.	A. A. Hutchinson & Brother,	98 Fifth avenue, Pittsburgh, Allegheny co.
Eagle mine,	do.	H. C. Frick & Co.,	104 Fifth avenue, Pittsburgh, Allegheny co.
Summit mine,	do.	James Cochran,	Dawson Station, Fayette county.
Summit, No 2,	do.	do.	do. do.
Tip-Top mines,	do.	H. C. Frick & Co.,	104 Fifth avenue, Pittsburgh, Allegheny co.
Valley Works,	do.	do.	do. do. do.
Carondelet,	do.	Frazer & Frye,	Fayette City, Fayette county.
Rutherford mine,	do.	James Rutherford,	do. do.
	do.	Thomas Briggs & Co.,	do. do.
* Connecticut mine,	do.	Conneetieut Coal Company.	
	do.	Turnbull & Hall,	do. do.
Excelsor,	do.	Daniel Bortner,	do. do.
* O. K.,	do.		
* Forsyth,	do.		
* White Pine,	do.		
Merchant mine,	do.	Coatsworth & Underwood,	California, Washington county.
Little Alps,	do.	do. do.	do. do.
Cedar Hill,	do.	Morgan & Dixon,	do. do.
Joseph Garrow,	do.	Joseph Garrow,	do. do.
Cunningham,	do.	A. L. Abrams,	Brownsville, Fayette county.
Spring Grove,	do.	Coehran & Kester,	Dawson Station, Fayette county.
Sterling, No. 1,	do.	Brown & Cochran,	do. do.
Frost mines,	do.		
Lemont mine,	do.	Hogsett, Hanna & Co.,	Lemont Furnace, Fayette county.
Youngstown mine,	do.	Brown, Bonnell & Co.	
	do.	Connellsville Gas Coal Company,	Connellsville, Fayette county.
* Coke Works,	do.	Beall & Ewing,	New Geneva, Fayette county.

NAME OF COLLIERY AND POST OFFICE ADDRESS, ETC.—CONTINUED.

NAME OF COLLIERY.	WHERE LOCATED.	NAME OF COMPANY.	POST OFFICE ADDRESS.
Abe Hays,	Washington county,	Abe Hays & Co.,	Monongahela City, Washington county.
Harlem,	do.	Harlem Coal Company,	do. do.
Black Diamond,	do.	Harlem Coal Company,	do. do.
Warne,	do.	Hiram Warne,	do. do.
Catsbird,	do.	Harlem Coal Company,	do. do.
New Eagle,	do.	Lindsey & McCutcheon,	Allegheny City, Allegheny county.
*Mingo,	do.	Thomas S. Hutchinson,	Monongahela City, Washington county.
Byers' mine,	do.	James Loutitt & Co.,	do. do.
Huston,	do.	John B. Huston,	Coal Bluff, Washington county.
* Buffalo mine,	do.	J. G. Langner,	Buffalo, New York State.
Cincinnati mine,	do.	J. S. Neil,	Coal Bluff, Washington county.
Coal Bluff mine,	do.	Patterson & Co.,	Carson street, Pittsburgh, Allegheny co.
Cliff Mine,	do.	Scully & Co.,	Coal Bluff, Washington county.
Gamble & Rischer,	do.	Gamble & Risher,	Dravosburg, Allegheny county.
American mine,	do.	F. H. Corsen,	Wood's Run, Washington county.
Keystone mines,	do.	Keystone Coal Company,	Hanlin's, Washington county.
McChain,	do.	Jacob Leglor,	Finleyville, Washington county.
Courtney,	do.	Berrey & Co.,	South Side, Pittsburgh, Allegheny county.
Knob colliery,	do.	Knob Coal Company,	West Brownsville, Washington county.
	do.	J. S. Neel,	California, Washington county.
Reed's mine,	do.	Reed Brothers,	Pike Run, Washington county.
Globe mine,	do.	Crowthers, Musgrave & Co.,	California, Washington county.
Dexter mine,	do.	do. do.	do. do.
Smith mine,	do.	Moore & Smith,	Pike Run, Washington county.
Caledonian,	do.	Caladonia Coal Company,	Wood's Run, Washington county.
Crow mine,	do.	Morgan & Dixon,	California, Washington county.
Wood's Run,	do.	Thomas J. Woods,	Wood's Run, Washington county.
Clipper,	do.	George W. Clark,	Bellevernon, Westmoreland county.
Stockdal's,	do.	Elizabeth Coal Company,	Monongahela City, Washington county.
Shireoaks,	do.	Blackburn & Mort,	Coal Bluff, Washington county.
Enterprise,	do.	V. Harding,	Washington, Washington county.
Allison mines,	do.	J. Allison,	do. do.
Brier Hill,	do.	J. D. Santers,	McDonald's, Washington county.
Primrose,	do.	Walnut Hill Coal Company,	Midway, Washington county.
Walnut Hill, No. 2,	do.	do. do.	do. do.
Block Coal mines,	do.	J. W. Crawford,	do. do.
Mullen mine,	Westmoreland county,	M. Mullen,	Mt. Pleasant, Westmoreland county.
Lower slope,	do.	Boyle & Hazlett,	Smithfield street, Pittsburgh, Allegheny co.
Upper slope,	do.	do. do.	do. do. do.
Standard mines,	do.	A. A. Hutchinson & Bro.,	94 Fifth avenue, Pittsburgh, Allegheny co.
Jacob's Creek mine,	do.	Fox, Kiffer & Co.,	Jacob's Creek, Westmoreland county.
Waverly mines,	do.	Waverly Coal and Coke Company,	Wood street, Pittsburgh, Allegheny co.
Markle mine,	do.	C. P. Markle & Co.,	West Newton, Westmoreland county.
White Heath,	do.	Robert Latimore,	Sutersville, Westmoreland county.

NAME OF COLLIERY AND POST OFFICE ADDRESS, ETC.—CONTINUED.

NAME OF COLLIERY.	WHERE LOCATED.	NAME OF COMPANY.	POST OFFICE ADDRESS.
Black Ball,	Westmoreland county,	N. J. Bigley,	Sutersville, Westmoreland county.
Ocean mine,	do.	W. L. Scott & Co.,	Scott Haven, Westmoreland county.
Armstrong's,	do.	C. H. Armstrong & Son,	Pittsburgh, Allegheny county.
White Ball,	do.	Youghiogheny Coal Hollow Coal Company,	Youghiogheny P. O., Westmoreland co.
Union Works,	do.	Jacob Tomer,	Webster, Westmoreland county.
Gilmore's mine,	do.	John Gilmore,	do. do.
Guffy's,	do.	William C. Guffy,	do. do.
Greensburg mines,	do.	Greensburg Coal Company,	Greensburg, Westmoreland county.
*Slope,	do.	Morgan & Co.,	Latrobe, Westmoreland county.
*Slope,	do.	Watt & Co.,	do. do.
Latrobe mines,	do.	M. Saxman, junior. & Co.,	do. do.
Loyal Hanna,	do.	Loyal Hanna Coke Company,	do. do.
Millwood shaft,	do.	Millwood Coal and Coke Company,	Millwood, Westmoreland county.
Isabella Coke Company,	do.	Isabella Furnace Company,	Cokeville, Westmoreland county.
Saltsburg mines,	do.	Saltsburg Coal Company,	Saltsburg, Indiana county.
Mill Bank,	do.	Laufman & Co.,	Apolla, Armstrong county.
Leechburg colliery,	do.	David B. Ashbaugh,	Leechburg, Armstrong county.
South-West mines,	do.	South-West Coal Company.	
Hurst & Stoner mine,	do.	Hurst, Stoner & Co.,	Stoner Post Office, Westmoreland county.
Enterprise,	do.	Dillinger & Suttle,	Scottdale, Westmoreland county.
Overton mine,	do.	A. C. Overholt,	West Overton, Westmoreland county.
Rising Sun,	do.	Markle & Co.,	do. do.
Buckeye mine,	do.	John M. Cochran,	Stauffer Station, Westmoreland county.
South Side,	do.	Westmoreland Coal Company,	Irwin, Westmoreland county.
North Side,	do.	do. do.	do. do.
Foster slope,	do.	do. do.	do. do.
*New Larimer,	do.	do. do.	do. do.
Old Larimer,	do.	do. do.	do. do.
Spring Hill,	Allegheny county,	do. do.	do. do.
*Westmoreland shaft,	Westmoreland county,	do. do.	do. do.
Shaft No. 1,	do.	Penn Gas Coal Company,	do. do.
Shaft No. 2,	do.	do. do.	do. do.
Shaft No. 3,	do.	do. do.	do. do.
Coal Run,	do.	do. do.	do. do.
*Mine No. 1,	do.	do. do.	do. do.
*Mine No. 2,	do.	do. do.	do. do.
*Mine No. 3,	do.	do. do.	do. do.
Mine No. 4,	do.	do. do.	do. do.
Shafton,	do.	Shafton Coal Company,	do. do.
Norwood mine, No. 1,	do.	H. C. Frick & Co.,	104 Fifth avenue, Pittsburgh, Allegheny co.
Norwood mine, No. 2,	do.	do.	do. do.
William Hodgson,	do.	Jones & Watkins,	Webster, Westmoreland county.
Iron City,	do.	Phillips & Nettenzway,	do. do.
Rostraver,	do.	William Clark,	Water street, Pittsburgh, Allegheny co.

NAME OF COLLIERY AND POST OFFICE ADDRESS, ETC.—Continued.

Name of Colliery.	Where Located.	Name of Company.	Post Office Address.
Tremont,	Westmoreland county,	George W. Clark,	Belle Vernon, Westmoreland county.
	do.	Noah Speers,	do. do.
Youghlogheny shaft,	do.		
Keystone Coal Company,	Somerset county,	Keystone Coal Company,	Keystone Junction, Somerset county.
Hersh,	do.	Cumberland Coal Company,	do. do.
Baltimore and Cumberland mine,	do.	Baltimore and Cumberland Company,	do. do.
Cumberland mines,	do.	Thomas Williams & Co.,	Meyersdale, Somerset county.
Salisbury mines,	do.	do. do.	do. do.
Berlin mines,	do.	Thomas Rees & Co.,	Berlin, Somerset county.
*Buffalo Creek mines,	do.	Buffalo Coal and Iron Company,	Garrett Station, Somerset county,
Lane colliery, No. 1,	Bedford county,	Morley & Langdon,	Hopewell, Bedford county.
Lane colliery, No. 2,	do.	do.	do. do.
Mount Equity, No. 1,	do.	Kemble Coal and Iron Company,	Riddlesburg, Bedford county.
Mount Equity, No. 2,	do.	do. do.	do. do.
Conard shaft,	do.	R. B. Wigton,	Six Mile Run, Bedford county.
Conard drift,	do.	do.	do. do.
Coaldale mine,	do.	William Piper,	do. do.
*Deval's shaft,	do.	Scott & Co.	

* Mines not operated in 1879.

A STATEMENT *of the Names, Power, Capacity, and Ventilation of the* *vania, for the Month*

NAME OF COLLIERY.	NAME OF OPERATOR.	Character of coal—bituminous or semi-bituminous.	Slope, shaft, or drift.	Pumps—how many.	Number of engines.	Horse power.
Dexter Mines,	J. R. Stauffer,	Bituminous,	Drift,			
Mount Equity,	Kemble Coal and Iron Company,	Semi-bitum.,	do.			
Fair Haveu,	Castle Shannon Coal Company,	Bituminous,	do.			
Rising Sun,	Markle & Co.,	do.	do.			
Eldorado,	Zuck & Henry,	do.	do.			
Nixon Mines,	Chartiers Valley Coal Company,	do.	do.			
Union Mines,	M. Graeber & Co., (limited,)	do.	do.		3	30
Slope No. 1,	Boyle & Hazlett,	do.	Slope,	2	1	60
Slope No. 2,	do.	do.	do.	2	1	60
Sterling Mine,	Brown & Cochran,	do.	Drift,			
Shafton Mines,	Shafton Coal Company,	do.	Shaft,	1	2	100
Waverly Mines,	Y. B. Corey,	do.	Drift,			
Corey,	Corey & Co.,	do.	do.			
Oak Ridge,	Oak Ridge Coal Co., (limited,)	do.	do.			
Knob Colliery,	Knob Coal Company,	do.	Slope,	1	1	30
Lemont Mines,	Ewing, Hanua & Co.,	do.	do.	1	1	30
Latrobe Mines,	M. Saxman, junior, & Co.,	do.	Drift,			
Saltsburg Mines,	Saltsburg Coal Company,	do.	do.			
Leechburg Colliery,	Leechburg Coal Company,	do.	do.			
Shaft No. 1,	Penn Gas Coal Company,	do.	Shaft,	1	1	
Shaft No. 2,	do. do.	do.	do.	1	1	
Coal Run,	do. do.	do.	Drift,			
Mines No. 4,	do. do.	do.	do.			
Fort Pitt,	Fort Pitt Coal Company,	do.	do.			
Southside,	Westmoreland Coal Company,	do.	do.			
Larimer's, No. 1,	do. do.	do.	do.			
Loyalhanna,	Loyalhanna Coal Company,	do.	Shaft,			
Millwood Shaft,	Millwood Coal Company,	do.	do.	1	1	
Duquesne Mines,	Duquesne Coal Company,	do.	Drift,			
Glendale,	James Glenn,	do.	do.			
Shaft, Pitts. and Conn. Coal and Coke Co.,		do.	Sl. and sh.,	6	4	
Connellsv'e Gas Coal Co.,		do.	Slope,	3	1	75
Enterprise Mines,	Dilliuger & Suttle,	do.	Drift,			
Abe Hays' Mines,	H. S. B. Hays,	do.	do.			
Keystone, Jones' Road,	W. H. Brown's heirs,	do.	do.	1	1	
Keystone, McCloskey R'd	do.	do.	do.			
Cumb. and Elk Lick C. Co		Semi-bitum.,	do.			
Hampton Mines,	John McIntyre,	Bituminous,	do.		1	

respective Collieries in the First Bituminous Mine District of Pennsyt-of January, 1879.

Boilers—how many.	Number of miners—men.	Number of miners—boys.	Other persons.	Total number of persons.	Number of mules inside.	Number of mules outside.	Total production in tons.	Ventilation.								
										1st week.		2d week.		3d week.		4th week.	
								Number of openings.	Inlet—size of—feet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.
. .	12	. .	1	13	1	1	2,200	2	42	401	16,842	. . .	. .	410	17,262		
. .	30	3	6	39	. .	5	2,900	2	42	260	6,435	240	5,940	380	4,405	280	6,980
. .	100	10	7	117	7	1	8,480	. .	63	155	9,765	150	9,450	150	9,450	152	9,576
. .	20	. .	3	23	2	1	3,920	3									
. .	16	. .	3	19	3	1	2,323	2	12	. . .	. . . .	. . .	. . . .	. .	. . . .	600	7,200
. .	25	3	7	35	2	. .	1,200										
3	120	15	. . .	135	15	4	6,755	6	. 42	200	8,568	180	7,770	160	6,888	190	8,140
2	24	. .	7	31	3	1											
2	30	1	9	40	4	2											
. .	130	. .	22	152	19	7	19,500										
4	47	5	15	67	3	. .	3,245	2	45	300	13,500	300	13,500	240	10,800	250	11,250
. .	75	4	6	85	6	. .	4,000	2									
. .	60	10	7	77	12	. .	4,000										
. .	60	. .	10	70	6	. .	. . . .	3	48	80	3,680	100	4,800	27	1,299	47	2,256
									36	360	12,900	284	10,224	100	4,320	320	11,520
2	10	2	5	17	2	. .	270	2	60	106	6,360	106	6,360	101	6,060	100	6,000
2	27	3	5	35	5	1	4,235	3	42	150	6,552	. . .	. . . .	150	6,552		
										140	6,174			140	6,174		
										190	8,148			190	8,148		
. .	35	3	9	47	4	. .	4,575	2									
. .	57	. .	8	65	5	. .	6,121	3	49	110	5,390	130	6,370	110	5,390	100	4,900
									25	100	2,500	70	1,750	60	1,500	40	1,000
. .	60	8	10	78	5	. .	6,000	4	48	160	7,680	160	7,680	170	8,160	170	8,160
3	186	20	36	242	14	. .	. . . .	3	. .	. .	20,820	. . .	22,140	. .	21,600	. . .	21,600
4	200	22	55	277	13	3	. . . .	3	106¼	. . .	25,000	. .	24,700	. . .	25,000	. . .	25,000
. .	154	26	42	222	15	5	. . . .	11	. . .	. . .	18,360	. .	21,080	. . .	20,400	. . .	22,100
. .	228	5	37	270	12	. .	. . . .	6	. . .	. . .	24,800	. .	22,950	. . .	28,300	. . .	24,700
. .	70	10	14	94	7	2	. . . .	3	45	150	6,750						
. .	92	. .	. . .	92	. .	. .	7,003										
. .	69	.	. . .	69	.	. .	5,777										
. .	100	10	13	123	10	. .	. . .	. .	48	450	21,600	460	22,080	470	22,560	450	21,600
6	60	6	9	75	7	. .	. . . .	. .	50	300	15,000						
. .	98	18	8	124	6	. .	. .	. .	. . .	220	17,710	110	34,656	91	28,665	101	31,815
. .	45	2	4	51	1	. .	1,000	2	42	140	5,880	150	6,300	145	6,090		
7	70	. .	112	182	5	5	11,293	2	64	160	12,493	175	13,424	155	12,182	165	12,803
2,	32	3	3	38	4	2	5,400	3	64	. . .	. . . .	. . .	. . . .	. . .	. . . .	90	8,147
. .	12	. .	9	21	2	. .	800										
. .	25	2	5	32	. .	. .	. . .	3	35	80	2,800						
1	125	25	41	191	10	. .	3,622										
. .	97	20	29	146	11	. .	1,615										
. .	55	6	7	68	4	. .	4,200	2	112	78	8,736	75	8,400	70	7,840	73	8,176
. .	140	10	20	170	9	. .	7,440										

A STATEMENT *of the Names, Power, Capacity, and Ventilation in the respective*

NAME OF COLLIERY.	VENTILATION.									
			1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.	
	Average velocity of air current per month at inlet.	Average velocity of air current per minute per month.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current per minute at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.
Dexter Mines,	....	....	70	2,940	....	....	168	7,056	....	....
Mount Equity,	290	....	130	3,120	120	2,880	130	3,120	90	2,160
Fair Haven,	157	....	145	6,090	140	5,880	145	6,090	142	5,964
Rising Sun,	....	....	....	....	....	....	....	....	....	....
Eldorado,	....	....	....	....	....	....	....	....	....	....
Nixon Mines,	....	....	....	....	....	....	....	....	....	....
Union Mines,	7,843½	....	....	....	....	....	....	....	....	....
Slope No. 1,	....	....	....	....	....	....	....	....	....	....
Slope No. 2,	....	....	....	....	....	....	....	....	....	....
Sterling Mine,	....	....	....	....	....	....	....	....	....	....
Shafton Mines,	272	....	165	7,425	160	7,200	130	5,850	140	6,300
Waverly Mines,	....	....	....	....	....	....	....	....	....	....
Corey,	....	....	....	....	....	....	....	....	....	....
Oak Ridge,	....	....	120	4,800	90	3,600	20	800	67	2,680
Knob Colliery,	103½	....	91	4,770	91	4,770	87½	4,550	86⅝	4,498
Lemont Mines,	....	....	85	2,304	85	2,304	....	....	....	....
Latrobe Mines,	....	....	....	....	....	....	....	....	....	....
Saltsburg Mines,	112½	....	105	11,812	80	9,000	90	10,125	100	11,250
	67¼	....	105	7,087	80	5,400	90	6,075	100	6,750
Leechburg Colliery,	165	....	120	5,760	120	5,760	110	5,280	130	6,240
Shaft No. 1,	....	....	430	21,650	435	22,100	455	21,675	....	....
Shaft No. 2,	....	....	580	25,000	585	25,200	610	26,950	615	27,100
Coal Run,	....	....	480	18,500	487	21,000	490	20,700	495	21,950
Mines No. 4,	....	....	625	25,200	600	22,950	610	28,000	575	24,700
Fort Pitt,	....	....	....	16,920	....	15,330	....	14,850	....	14,070
Southside,	....	....	....	16,930	....	15,330	....	14,850	....	14,070
Larimer's, No. 1,	....	....	....	....	....	....	....	....	....	....
Loyalhanna,	....	....	....	....	....	....	....	....	....	....
Millwood Shaft,	....	....	250	10,000	....	....	....	....	....	....
Duquesne Mines,	....	....	....	....	....	....	....	....	....	....
Glendale,	....	....	....	....	135	4,050	150	6,300	140	4,200
Shaft, Pitts. and Conn. Coal and Coke Co.,	163¾	....	145	11,562	165	12,803	150	11,872	150	11,872
Connellsville Gas Coal Co.,	....	....	....	....	....	....	....	....	....	....
Enterprise Mines,	....	....	....	....	....	....	....	....	....	....
Abe Hays' Mines,	....	....	....	....	....	....	....	....	....	....
Keystone, Jones' Road,	....	....	....	....	....	....	....	....	....	....
Keystone, McCloskey R'd,	....	....	....	....	....	....	....	....	....	....
Cumb. and Elk Lick C. Co.,	74	....	....	....	....	....	....	....	....	....
Hampton Mines,	....	....	....	....	....	....	....	....	....	....

Collieries in the First Bituminous Mine District of Pennsylvania—Continued.

VENTILATION.											
		1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.			
Average velocity per minute for the month	Outlet—size of—feet.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Average number of feet passing out per month.	HOW VENTILATED.
. . . .	56	160	9,240	. . .	. . . .	364	20,272	. . .	. . .	. . . .	By natural currents.
. . . .	33	170	5,610	190	6,270	250	8,250	. . .	. . . .	. . . .	do.
. . . .	56	153	8,680	160	8.960	155	8,680	157	8,792	. . . .	do.
. . .	. .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	do.
. . . .	49	. . .	. . . .	. . .	. . . .	. . .	. . . .	127	7,546	. . . .	do.
. . . .	. .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	By furnace, 5 ft. by 16 ft.
. . . .	42	180	7,770	170	7,394	150	6,552	170	7,392	. . . .	By natural currents.
. . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	By steam exhaust.
. . . .	. .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	By furnace, 5 ft. by 4 ft.
. . . .	. .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	By natural currents.
. . . .	98	150	14,700	145	14,210	120	11,760	125	12,250	13,230	By steam exhaust.
. . . .	. .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	By natural currents.
. . .	. .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	do.
. . . .	40	530	21,200	480	19,200	160	6,400	453	18,120	. . .	By furnace, 6 x 25 ft. long.
89	30	213	6,390	213	6,390	203	6,090	201	6,030	6,225	By steam exhaust.
. . . .	48	375	18,048	375	18.048	. . .	. . . .	. . .	. . . .	. . . .	do.
. .	. .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	By natural currents.
93¾	45	130	5,850	140	6,300	110	4,950	120	5,400	125	By furnace, 4 ft. by 6½ ft.
93¾	42	85	3,570	40	1,680	35	1,470	55	2,310	53¾	
. . . .	48	150	7,200	140	6,720	160	7,680	150	7,200	. . . .	By furnace, 7 ft. by 24 ft.
. . . .	54	380	20,820	410	22,140	400	21,600	400	21,600	. . .	By fan, 12 feet diameter.
. . . .	40	625	25,000	615	24,600	625	25,000	625	25,000	. . . .	do.
. . .	34	540	18,360	620	21,080	600	20,400	650	22,100	. . . .	By furnace, 48 ft. fire bed.
. . . .	49	. . .	24,800	. . .	22,950	. . .	28,300	. . .	24,700	. . . .	By furnace, 56 ft. fire bed.
. . . .	35	200	7,000	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	By natural currents.
13,9:0	. . .	. . .	32,000	. . .	29,250	. . .	27,000	. . .	23,400	28,050	By furnace.
. . . .	. . .	. . .	24,050	. .	19,850	. . .	19,860	. . .	22,500	21,500	do.
. . . .	. .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	By stean exhaust.
. . . .	108	100	10,800	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	By fan, 12 feet diameter.
. . . .	. .	125	36,401	127	30,290	115	31,050	127	34,290	. . . .	By natural currents.
. . . .	42	135	5,670	150	6,300	140	5,880	. . .	. . . .	. . . .	do.
. . . .	. . .	145	11,562	165	12,803	150	11,872	150	11,872	152½	By steam exhaust.
. . .	64	. . .	. . . .	. . .	. .	. . .	. . . .	105	9,078	. . . .	do.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	By natural currents.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	By furnace, 3 ft. x 12 ft. long
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	By natural currents.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	do.
. . . .	64	135	8,640	130	8,320	115	7,360	120	7,680	8,000	By fire basket.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	By natural currents.

A STATEMENT *of the Names, Power, Capacity, and Ventilation of the*
vania, for the Month

NAME OF COLLIERY.	NAME OF OPERATOR.	Character of coal - bituminous or semi-bituminous.	Slope, shaft, or drift.	Pumps—how many.	Number of engines.	Horse power.
Cumberland and Elk Lick Coal Company,		Semi-bitum.,	Drift,			
Carondolet,	Frazer & Frye,	Bituminous,	do.			
Pittsburgh and Connellsville G. C. and C. Co.,		do.	S. & Shaft,	6	4	
Hampton Mine,	John McIntyre,	do.	Drift,		1	
Ocean Mines,	William L. Stott & Co.,	do.	do.			
Loyalhanna C. & C. Co,,		do.	Shaft,			
Lemont Mines,	Ewing, Hanna & Co.,	do.	Slope,	1	1	30
Leechburg Colliery,	D. B. Ashbaugh & Co.,	do.	Drift,			
Oak Ridge,	Oak Ridge Coal Company,	do.	do.			
Union Coal Works,	M. Graver & Co., (limited,)	do.	do.		3	30
Saltsburg Coal Company,		do.	do.			
Rising Sun Coke Works,	Markle & Co.,	do.	do.			
Cumberland Mines,	J. W. Williams,	Semi-bitum.,	do.			
Knob Colliery,	Knob Coal Company,	Bituminous,	S. & Shaft,	1	1	30
Mount Braddock,	Colvin & Torrance,	do.	Drift,	1	2	
Nixon Mines,	Chartiers Valley Coal Company,	do.	do.			
Duquesne Mine,	Duquesne Coal Company,	do.	do.			
Boyle & Hazlett Mines,		do.	Slope,	3	1	60
Boyle & Hazlett Mines,		do.	do.	2	1	60
Fort Pitt,	Fort Pitt Coal Coal,	do.	Drift.			
Millwood Shaft,	Millwood Coal and Coke Co.,	do.	Shaft,	1	2	
Connellsville Gas C. Co.,		do.	Slope,	3	1	75
Shafton Mines,	Shafton Coal Company,	do.	Shaft,	1	2	100
Shaft, No. 1,	Penn Gas Coal Company,	do.	do.			
Shaft. No. 2,	Penn Gas Coal Company.	do.	do.			
Coal Run.	Penn Gas Coal Company,	do.	Drift,			
Mines, No. 4,	Penn Gas Coal Company,	do.	do.			
Spring Hill,	Westmoreland Coal Company,	do.	do.			
South Side,	Westmoreland Coal Company,	do.	do.			
Larimer's,	Westmoreland Coal Company,	do.	do.			
Foster Slope,	Westmoreland Coal Company,	do.	do.			
Latrobe Mines,	M. Saxman & Co.,	do.	do.			

respective Collieries in the First Bituminous Mine District of Pennsyl-
of Feburary, 1879.

Boilers—how many.	Number of miners—men.	Number of miners—boys.	Other persons.	Total number of persons.	Number of mules inside.	Number of mules outside.	Total production in tons.	VENTILATION.							
										1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.	
								Number of openings.	Inlet—size of—feet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.
. .	52	7	7	66	4	. .	3,500	3	112	78	8,736	72	8,064	80	8,960	53	5,936
. .	40	. .	8	48	3	1	882	4									
7	76	2	111	189	5	5	13,085	4	64	145	11,562	150	11,872	135	10,941	155	12,181
1	140	12	20	172	9	. .	6,440										
. .	60	7	13	80	5	. .	4,400	2	48	140	6,720	. . .	. . . .	. . .	. . . .	145	6,960
. .	85	10	13	108	10	. .	. . . .	2	48	500	24,000	500	24,000	450	21,600	425	20,400
2	27	2	6	35	5	1	3,853	3	42	150	6,552	150	6,552				
										140	6,174	140	6,174				
										190	8,148	190	8,148				
. .	60	8	10	78	5	. .	5,000	3	48	225	10,800	190	9,120	180	8,620	210	10,080
. .	58	. .	11	69	6	. .	. . . .	3	48	87	3,430	130	5,200	160	7,680	103	4,944
									36	254	9,144	318	11,444	303	10,908	284	10,224
3	100	10	30	140	15	4	5,817	7	42	190	8,148	160	6,880	160	6,880	170	7,392
. .	57	. .	8	65	5	. .	5,209$\frac{1}{5}$	3	49	110	5,390	170	8,380	175	8,575	170	8,330
									25	45	1,125	60	1,500	65	1,625	45	1,125
. .	19	. .	3	22	2	1	3,600										
. .	15	2	4	21	1	. .	700										
2	17	8	7	32	2	. .	1,755	2	60	100	6,000	102	6,120	102	6,120	102	6,120
2	30	1	8	39	6	1	5,760	2	25	280	7,000	285	7,125	284	7,100	286	7,150
									30	250	7,500	255	7,650	254	7,620	256	7,680
. .	45	3	6	54	2	1	1,400										
. .	94	18	10	122	6	. .	. . . .	. .	. . .	113	34,539	128	34,560	122	38,430	132	41,580
3	21	2	7	30	3	2	4,000										
2	28	1	9	38	4	2	4,987										
. .	50	4	10	64	4	2	. . . .	3	42	150	6,300	. . .	. . . .	. . .	. . . .	200	8,400
6	. . .	. .	. .	. . .	. .	. .	. . . .	. .	. . .	300	15,000						
2	32	3	3	38	4	2	5,000	3	64	. . .	. . . .	. . .	. . .	. . .	. . . .	92	8,271
4	54	6	15	75	4	. .	3,576	2	45	300	13,500	280	12,600	290	13,050	280	12,600
. .	150	20	32	202	10	. .	. . . .	3	. . .	. . .	19,200	. . .	21,600	. . .	19,850	. . .	19,800
. .	200	22	55	277	13	3	. . . .	3	. . .	. . .	25,000	. . .	25,000	. . .	25,000	. .	25,000
. .	140	26	40	206	13	5	. . . .	10	. . .	. . .	19,800	. . .	21,400	. . .	20,900	. . .	21,100
. .	180	5	30	215	10	. .	. . . .	. .	. . .	. . .	26,300	. . .	23,200	. . .	28,000	. . .	26,300
. .	. . .	. .	. . .	29	. .	. .	2,991										
. .	. . .	. .	. . .	87	. .	. .	8,090										
. .	. .	. .	. . .	67	. .	. .	6,524										
. .	. . .	. .	. . .	81	. .	. .	8,117										
. .	33	2	6	41	5	. .	3,318										

A STATEMENT *of the Names, Power, Capacity, and Ventilation of the respective*

NAME OF COLLIERY.	VENTILATION.									
			1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.	
	Average velocity of air current per month at inlet.	Average velocity of air current per minute per month.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current per minute at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.
Cumberland and Elk Lick Coal Company,	70¾	....	....	....	....	....	....	....	....	....
Carondolet,	....	....	....	....	....	....	....	....	....	....
Pittsburgh & Connellsville Gas Coal and Coke Co.,	146¼	....	130	10,630	140	11,251	130	10,630	140	11,251
Hampton Mine,	....	....	....	....	....	....	....	....	....	....
Ocean Mines,	....	....	100	4,800	....	....	....	....	95	4,560
Loyalhanna Coal & Coke Co.	....	....	....	....	....	....	....	....	....	....
Lemont Mines,	....	85	2,304	....	85	2,304	85	2,304	....	....
Leechburg Colliery,	201	....	169	8,112	185	8,880	190	9,120	....	....
Oak Ridge,	....	....	97	3,880	136	5,440	110	4,400	87	3,480
Union Coal Works,	....	....	....	....	....	....	....	....	....	....
Saltsburg Coal Company,	....	....	30	4,680	15	2,340	15	2,340	20	3,120
			40	2,150	50	2,687	20	1,015	45	2,284
Rising Sun Coke Works,	....	....	....	....	....	....	....	....	....	....
Cumberland Mines,	....	....	....	....	....	....	....	....	....	....
Knob Colli-ry,	101⅛	....	86	4,472	88	4,576	88	4,576	88	4,576
Mount Braddock,	284	....	165	6,950	170	7,160	162	6,804	171	7,182
	254	....	177	7,450	181	7,618	174	7,308	183	7,668
Nixon Mines,	....	....	....	....	....	....	....	....	....	....
Duquesne Mine,	....	....	....	....	....	....	....	....	....	....
Boyle & Hazlett,	....	....	....	....	....	....	....	....	....	....
Boyle & Hazlett,	....	....	....	....	....	....	....	....	....	....
Fort Pitt,	....	....	....	....	....	....	....	....	....	....
Millwood Shaft,	....	....	350	10,000	....	....	....	....	....	....
Connellsville Gas Coal Co.,	....	....	....	....	....	....	....	....	....	....
Shafton Mines,	287	....	180	8,100	170	7,650	175	7,875	160	7,200
Shaft No. 1,	....	....	432	19,714	465	21,700	435	19,800	415	20,000
Shaft No. 2,	....	....	580	25,070	575	24,800	585	25,300	530	25,600
Coal Run,	....	....	480	19,300	510	21,750	500	20,900	505	21,000
Mine No. 4,	....	....	585	26,450	530	23,100	580	28,300	535	26,000
Spring Hill,	....	....	....	....	....	8,500	....	7,500	....	8,000
South Side,	....	....	....	13,020	....	13,440	....	13,860	....	15,120
Larimer's,	....	....	....	....	....	....	....	....	....	....
Foster Slope,	....	....	....	15,900	....	17,400	....	16,200	....	17,100
Latrobe Mines,	....	....	....	....	....	....	....	....	....	....

Collieries in the First Bituminous Mine District of Pennsylvania.—Continued.

Ventilation.											
		1st week.		2d week.		3d week.		4th week.			
Average velocity per minute for the month.	Outlet—size of—feet.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Average number of feet passing out per month.	Where Located.
. . . .	64	135	8,640	120	7,680	150	9,600	90	5,960	7,970	Somerset county.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	Fayette county.
. . . .	. . .	130	10,630	140	11,251	130	10,630	140	11,251	135	do.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	Allegheny county.
. . . .	48	130	6,624	. . .	. . . .	. . .	. . . .	130	6,624	. . .	Westmoreland county.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	do.
. . . .	48	375	18,048	375	18,048	375	18,048	. . .	. . . .	. . .	Fayette county.
. . . .	36	225	8,100	240	8,640	240	8,640	250	9,000	. .	Westmoreland county.
. . . .	40	420	16,800	510	20,400	502	20,080	472	18,880	. . .	Allegheny county.
. . . .	42	180	7,770	150	6,552	140	6,174	150	6,555	6,762	do.
. . . .	42	55	2,310	50	2,100	50	2,100	40	1,680	2,047	Westmoreland county.
. . . .	42	200	8,400	190	7,980	230	9,660	220	9,240	8,820	do.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. .	. .	. . .	. . . .	. . . .	do.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	Somerset county.
. . . .	30	203	6,090	207	6,210	207	6,210	. . .	. . . .	. . . .	Washington county.
. . . .	30	480	14,400	490	14,700	488	14,640	492	14,760	. . . .	Fayette county.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. .	. . . .	. . . .	Allegheny county.
. . . .	. . .	151	40,770	106	33,390	164	44,280	177	47,790	. . .	do.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	Fayette county.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	do.
. . .	35	200	7,000	. . .	. . . .	. . .	. . .	250	8,750	. . .	Allegheny county.
. . . .	100	100	10,000	. . .	. . . .	. . .	. . . .	. .	. . . .	. . .	Westmoreland county.
. . . .	64	. . .	. . . .	. . .	. . . .	. . .	. . .	105	9,078	. . .	Fayette county.
. . . .	94	150	14,700	135	13,230	145	14,210	140	13,720	13,965	Westmoreland county.
. . . .	51	375	19,176	405	20,655	390	19,890	389	19,840	. .	do.
. . . .	40	625	25,000	625	25,000	625	25,000	625	25,000	. . .	do.
. . . .	34	580	19,720	630	21,420	615	20,910	620	21,080	. . .	do.
. . . .	49	. . .	26,300	. . .	23,200	. . .	28,000	. .	26,300	. . .	do.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	do.
. . . .	. . .	. . .	27,280	. . .	27,250	. . .	22,550	. . .	26,260	. . .	do.
. . . .	. . .	. . .	21,320	. . .	23,530	. . .	23,630	. . .	22,580	. . .	do.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	do.
. . . .	. . .	. . .	. . . .	. .	. . . .	. . .	. . . .	. . .	. . . .	. . .	do.

A STATEMENT *of the Names, Power, Capacity, and Ventilation of the* *vania, for the Month*

NAME OF COLLIERY.	NAME OF OPERATOR.	Character of coal—bituminous or semi-bituminous.	Slope, shaft, or drift.	Pumps—how many.	Number of engines.	Horse power.
National Mines,	Consolidated Coal and Mining Co.	Bituminous,	Drift,	1		
Ocean Mines,	W. L. Scott & Co.,	do.	do.			
	Horner & Roberts,	do.	do.	1	1	
Knob Colliery,	Knob Coal Company,	do.	Sh. and sl.,	1	1	30
Armstrong's Mine,	C. H. Armstrong & Son,	do.	Drift,			
Greensburg Mine,	Greensburg Coal Company,	do.	do.			
Millwood Shaft,	Millwood Coal and Coke Co.,	do.	Sl. and sh.,	1	2	
Pittsburgh and Connellsville G. C. and C. Co.,		do.	Sl. and sh.,	6	4	
Shafton Mines,	Shafton Coal Company,	do.	Shaft,	1	2	100
Saltsburg Mines,	Saltsburg Coal Company,	do.	Drift,			
Oak Ridge Mines,	Oak Ridge Coal Company,	do.	do.			
Leechburg Colliery,	Leechburg Coal Company,	do.	do.			
Lemont Mines,	Ewing, Hanna & Co.,	do.	Slope,	1	1	30
Union Coal Works,	M. Graver & Co., Limited,	do.	Drift,		3	30
Enterprise,	Hartley & Marshall,	do.	do.	1	1	40
Lane Colliery,	Langdon & Morley,	Semi-bitum.,	do.			
Loyalhanna,	Loyalhanna Coal and Coke Co.,	Bituminous,	Sl. and sh.,			
Shaft No. 1,	Penn Gas Coal Company,	do.	do.			
Shaft No. 2,	do. do.	do.	do.			
Coal Run,	do. do.	do.	Drift,			
Mines No. 4,	do. do.	do.	do.			
Eldorado,	Znek & Henry,	do.	do.			
Youghiogheny,	James O'Neil,	do.	do.		1	
Mill Colliery,	Laufman & Co.,	do.	do.	1		
Cornell & Werlings,	W. H. Brown Heirs,	do.	do.	2	5	
Nimick,	Thomas Fox,	do.	do.			
Cumberland Mines,	J. W. Williams,	Semi-bitum.,	do.			
Buckeye Mines,	John M. Cochran,	Bituminous,	do.	2		
Latrobe Mines,	M. Saxman, junior, & Co.,	do.	do.			
Abe Hays,	W. S. B. Hays,	do.	do.			
Fair Haven,	Pitt., Castle Shannon R. Co.,	do.	do.			
Pittsburgh Union,	Joseph McConnell,	do.	do.			
Duquesne Mines,	Duquesne Coal Company,	do.	do.			
	William Neel,	do.	do.			
Cumberland and Elk Lick Coal Company,		Semi-bitum.,	do.			
Nixon Mines,	Chartiers Valley Coal Company,	Bituminous,	do.			
Sterling Mines,	Brown & Cochran,	do.	do.			
Sandy Creek,	New York and Clev. G. C. Co.,	do.	do.			
Plum Creek, New York and Clevel'd G. C. Co.,		do.	do.			
No. 4., New York and Cleveland G. C. Co.,		do.	do.			
Larimer, No. 1,	Westmoreland Coal Company,	do.	do.			
Spring Hill,	do. do.	do.	do.			
Southside Mine,	do. do.	do.	do.			
Foster Slope,	do. do.	do.	Slope,			

respective Collieries in the First Bituminous Mine District of Pennsyl-
of March, 1879.

Boilers—how many.	Number of miners—men.	Number of miners—boys.	Other persons.	Total number of persons.	Number of mules inside.	Number of mules outside.	Total production in tons.	VENTILATION.							
										1ST WEEK		2D WEEK.		3D WEEK.		4TH WEEK.	
								Number of openings.	Inlet—size of—feet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.
1	60	6	19	85	12	. .	. . . .	2	38	277	8,626	247	9,386	217	8,246	158	6,004
									40	217	8,680	208	8,320	178	7,120	119	4,760
. .	100	8	17	125	7	. .	6,000	2	48	130	6,240	130	6,240	. . .	. . . .	140	6,720
2	140	.	20	160	9	1	7,040	2	54	400	21,700	. . .	. . . .	. . .	. . . .	420	22,300
2	22	8	6	36	2		2,814	2	60	100	6,000	102	6,220	98	5,880	98	5,880
. .	98	12	19	129	6	3	4,360	3									
. .	20	. .	9	29	3	2	1,800	2	48	160	7,680	. . .	. . . .	150	7,200	180	8,640
6	65	6	5	76	7	. .	. . . .	2	50	. .	18,000						
7	78	2	117	197	5	5	10,090	3	64	130	10,630	135	10,941	130	10,630	141	11,251
4	51	7	15	73	4	. .	1,520	2	45	280	12,600	310	13,950	300	13,500	260	11,200
. .	55	. .	7	62	4	. .	5,047	3	40	160	7,810	140	6,860	120	5,880	100	4,900
									25	95	2,375	205	5,125	215	5,375	270	6,750
. .	63	. .	12	75	6	. .	. . . .	3	48	167	8,116	147	7,056	160	7,680	120	5,760
									36	156	5,616	109	3,834	210	7,560	317	12,492
. .	60	8	9	77	5	. .	4,500	4	48	200	9,600	220	10,560	190	9,120	200	9,600
2	40	7	2	49	5	1	3,189	3	42	475	19,950	463	20,202	471	20,558	395	20,706
3	98	18	30	146	15	4	5,892	6	42	250	10,584	270	11,424	200	8,568	220	9,366
2	120	10	17	147	7	. .	3,420	3	45	220	14,400						
.	48	5	. . .	53	6	. .	2,500	2	48	100	4,800	100	4,800	105	5,040	100	4,800
. .	70	5	10	85	10	1	. . . .	2	48	430	20,640	450	21,600	500	24,000	420	20,160
. .	150	20	32	202	10	. .	. . . .	3	. . .	. . .	19,380	. .	20,655	. .	20,043	. . .	21,420
. .	200	22	55	277	13	3	. . . .	3	. . .	. . .	25,000	. . .	25,000	. . .	24,000	. . .	25,000
. .	140	26	40	206	13	5	. . . .	10	. . .	.	20,400	. .	20,180	. . .	19,482	. . .	19,720
. .	180	5	30	215	10	.	. . . .	. .	. . .	. . .	24,600	. . .	26,100	. .	24,800	. . .	31,000
. .	18	. .	3	21	3	1	2,653	2	12	200	2,448						
1	75	. .	20	95	6	. .	3,480	5									
. .	27	1	5	33	2	1	1,185	2	48								
4	175	15	32	222	8	1	3,585	4	44								
. .	19	1	2	22	. .	. .	1,000	2	42	. . .	3,500						
. .	18	4	4	26	1	. .	1,000	3	150								
2	16	. .	20	36	3	1	2,236	2	49								
. .	30	1	8	39	5	. .	2,748	2									
. .	30	. .	5	35	2	1	. . . .	2	36								
. .	90	7	3	100	7	1	4,351	3	63	155	9,765	150	9,450	152	9,576	155	9,765
. .	27	3	4	34	2	1	140	2	48	. . .	4,000						
. .	96	18	9	123	6	. .	. . . .	. .	. . .	78	2,455	190	5,110	78	2,455	104	3,276
. .	21	. .	6	27	. .	. .	1,720										
. .	52	7	7	66	4	. .	3,697	2	112	45	5,040	50	5,600	66	7,390	60	6,720
. .	36	2	7	45	2	. .	1,800										
. .	159	. .	. . .	159	20	7	16,500										
. .	159	45	36	240	24	5	6,536	21	48	300	14,400	262	12,510	195	9,360	225	10,800
. .	125	25	30	180	14	. .	5,953	15	56	100	5,625	100	5,625	85	4,781	70	3,937
. .	183	25	40	248	9	1	6,789	4	. . .	1,240	46,296	1,288	48,009	1,340	49,140	1,128	41,639
. .	. . .	. .	. . .	55	. .	. .	6,055										
. .	. . .	. .	. . .	29	. .	. .	3,033										
. .	. . .	. .	. . .	91	. .	. .	9,622										
. .	. . .	. .	. . .	81	. .	. .	9,760										

A STATEMENT *of the Names, Power, Capacity, and Ventilation of the respective*

NAME OF COLLIERY.	VENTILATION.									
			1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.	
	Average velocity of air current per month at inlet.	Average velocity of air current per minute per month.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading	Number of cubic feet per minute passing at or near face of head'g	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.
National Mines,			208	8,320	217	8,680	193	7,920	217	8,680
			217	8,680	232	9,280	188	7,520	208	8,320
Ocean Mines,			90	4,320						
				12,000		12,500		6,800		7,000
Knob Colliery,	99½		86	4,472	88	4,576	84	4,368	84	4,368
Armstrong's Mine,										
Greensburg Mine,										
Millwood Shaft,				11,000						
Pitts. & Conn. G.C. & C. Co.	13⅔		115	9,699	125	10,320	125	10,320	135	10,941
Shafton Mines,	290		160	7,200	180	8,100	170	7,650	150	6,750
Saltsburg Mines,	130		60	7,800	50	6,500	105	13,650	70	9,100
	193		50	9,800	40	7,840	35	6,860	35	6,860
Oak Ridge Mines,			87	3,480	67	2,680	70	2,800	116	4,640
Leechburg Colliery,	202½		160	7,680	175	8,190	155	7,440	165	7,920
Lemont Mines,			80	2,180	84	2,232	85	2,280	80	2,184
Union Coal Works,	232½									
Enterprise,			260	12,120						
Lane Colliery,	101		260	4,160	240	3,840	260	4,160	250	4,000
Loyalhanna,										
Shaft No. 1,			435	19,700	480	20,600	485	20,130	505	21,600
Shaft No. 2,			560	24,670	558	24,800	538	24,200	544	25,180
Coal Run,			480	20,290	510	21,120	500	19,500	485	19,200
Mines No. 4,			570	24,200	575	26,300	590	25,000	640	28,390
Eldorado,										
Youghiogheny,										
Mill Colliery,										
Cornell & Werlings,										
Nimick,										
Cumberland Mines,										
Buckeye Mines,										
Latrobe Lines,										
Abe Hays,										
Fair Haven,	753		148	6,216	145	6,090	147	6,174	145	6,090
Pittsburgh Union,										
Duquesne Mines,										
Cumberland and Elk Lick, Coal Company,	55¼									
Nixon Mines,										
Sterling Mines,										
Sandy Creek,			90	4,320	90	4,320	90	4,320	70	3,360
Plum Creek,			90	4,320	100	4,800	70	3,360	60	2,880
No. 4,										
Larimer, No. 1,										
Spring Hill,				9,500		7,000		4,000		8,500
Southside Mine,				11,340		10,800		11,760		10,700
Foster Slope,				18,000		17,700		17,100		16,200

Collieries in the First Bituminous Mine District of Pennsylvania—Continued.

Ventilation.											
		1st week.		2d week.		3d week.		4th week.			
Average velocity per minute for the month.	Outlet—size of—feet.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Average number of feet passing out per month.	Where Located.
. . . .	24	632	15,168	765	18,360	. .	. . . .	. . .	. . . .	. . . .	Allegheny county.
. . . .	48	135	6,480	. . .	. . . .	. . .	. . .	152	7,296	. . . .	do.
. . . .	4$\frac{5}{8}$		23,500	. . .	21,800	. . .	22,000		24,000	. . . .	do.
. . . .	30	201	6,030	205	6,100	196	5,880	196	5,880	59,722	Washington county.
. . . .	. .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	Allegheny county.
. . . .	25	250	6,250	. . .	. . . .	250	6,250	270	6,750	. . .	Westmoreland county.
. . . .	100	100	10,000	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	do.
125	. . .	115	9,699	125	10,320	125	10,320	135	10,941	125	do.
165	98	140	13,720	160	15,680	150	14,700	130	12,740	14,210	do.
71	49	200	12,740	240	11,760	270	13,230	270	13,230	12,740	do.
40											
. . . .	40	422	16,880	373	14,920	442	17,680	500	20,000	. . . .	Allegheny county.
164	80	120	9,600	130	10,400	110	8,800	110	8,800	117$\frac{1}{2}$	Westmoreland county.
. . . .	48	362	17,424	365	17,563	370	17,808	363	17,520	17,580	Fayette county.
. . . .	42	220	9,366	250	10,884	190	8,190	210	8,988	9,282	Allegheny county.
. . . .	50	315	15,750	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	do.
. . . .	16	500	8,000	450	7,200	500	8,000	475	7,600	7,750	Bedford county.
. . . .	. .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	Westmoreland county.
. . . .	51	380	19,380	405	20,655	393	20,043	420	21,420	. . . .	do.
. . . .	40	625	25,000	625	25,000	600	24,000	625	25,000	. . . .	do.
. . . .	34	600	20,400	620	21,080	573	19,482	580	19,720	. . . .	do.
. . . .	49	. . .	24,600	. .	26,100	. .	24,800	. . .	31,000	. . . .	do.
. . . .	49	79	2,842	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	Fayette county.
. . . .	. .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	Allegheny county.
. . . .	. .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	Westmoreland county.
. . . .	42$\frac{1}{4}$	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	Allegheny county.
. . . .	42	. . .	3,500	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	do.
. . . .	96	. . .	. . . .	. . .	. . . .	. .	. . . .	. . .	. . . .	. . . .	Somerset county.
. . . .	16	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	Fayette county.
. . . .	. .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	Westmoreland county.
. . . .	. .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	Washington county.
146	56	158	8,848	155	8,680	160	8,960	157	8,792	151	Allegheny county.
. . . .	16	. . .	4,070	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	do.
. . . .	. . .	98	2,646	158	4,266	90	2,610	122	3,294	. . .	do.
. . . .	. .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	do.
. . . .	64	75	4,800	86	5,504	115	7,360	100	6,400	6,016	Somerset county.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	Allegheny county.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	Fayette county.
134	. . .	70	3,360	84	4,032	80	3,840	60	2,888	3,528	Allegheny county.
. . . .	56	100	5,600	110	6,162	70	3,937	60	3,375	. . . .	do.
. . . .	. . .	478	19,279	490	19,834	521	21,091	424	17,135	. . . .	do.
. . . .	. . .	. . .	19,850	. . .	16,960	. . .	17,640	. . .	. . . .	. . . .	Westmoreland county.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	do.
. . . .	. . .	. . .	24,990	. . .	26,500	. . .	30,350	. . .	24,750	. . . .	do.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	do.

A STATEMENT *of the Names, Power, Capacity, and Ventilation of the vania, for the Month*

NAME OF COLLIERY.	NAME OF OPERATOR.	Character of coal—bituminous or semi-bituminous.	Slope, shaft, or drift.	Pumps—how many.	Number of engines.	Horse power.
Cedar Hill,	Morgan & Dixon,	Bituminous,	Drift,			
Connellsville Gas Coal Co		do.	Slope,	3	1	75
Union Mines,	Jacob Tomer,	do.	Drift,		1	12
Jefferson Mines,	Foster, Clarke & Wood,	do.	do.	1		
Loyalhanna C. & C. Co.,		do.	Shaft,	3	1	
Street's Run,	J. D. Risher,	do.	Drift,			
Duquesne,	Duquesne Coal Company,	do.	do.			
Rising Sun,	Markle & Co.,	do.	do.			
Knob Colliery,	Knob Coal Company,	do.	Sh. and sl.,	1	1	30
Carondolet,	Frazer & Frye,	do.	Drift,			
Enterprise,	O'Neil & Co.,	do.	do.			
Coal Run,	Penn Gas Coal Company,	do.	do.			
Shaft No. 1,	do. do.	do.	Shaft,			
Shaft No. 2,	do. do.	do.	do.			
Mine No. 4,	do. do.	do.	Drift,			
Pittsburgh Union,	Joseph McConnell,	do.	do.			
Greensburg Mines,	Greensburg Coal Company,	do.	do.			
Lemont Mines,	Ewing, Hanna & Co.,	do.	Slope,	1	1	30
William Hodgson,	Jones & Watkins,	do.	Drift,			
Turtle Creek, No. 4,	N. Y. & Cleveland Gas Coal Co.,	do.	do.			
Sandy Creek,	do. do.	do.	do.			
Plum Creek,	do. do.	do.	do.			
Latrobe Mines,	M. Saxman, junior, & Co.,	do.	do.		1	
Hampton Mines,	John McIntyre,	do.	do.			
Youghiogheny,	James O'Neil,	do.	do.		1	
Eldorado,	Zuck & Henry,	do.	do.			
Green Springs,	Redman & Fawcett,	do.	do.		1	35
Union Coal Works,	M. Graver & Co.,	do.	do.		3	30
Saltsburg Coal Company,		do.	do.			
Shafton Mines,	Shafton Coal Company,	do.	Shaft,	1	2	100
Umpire Mines,	J. S. Cunniugham & Co.,	do.	Drift,			
Slope No. 1,	Boyle & Hazlett,	do.	Slope,	2	1	60
Slope No. 2,	do.	do.	do.	2	1	60
Cornell & Werling,	W. H. Brown's Heirs,	do.	Drift,	2	5	
Cumb. & Elk Lick C. Co.,		Semi-bitum.,	do.			
Abe Hays,	W. S. B. Hays,	Bituminous,	do.			
Enterprise,	Dillinger & Suttle,	do.	do.			
Camden,	George Lysle & Sons,	do.	do.			
Lane Colliery,	Sandy Run Coal Company,	Semi-bitum.,	do.			
Enterprise,	Hartley & Marshall,	Bituminous,	do.	1	1	40
Amity,	J. C. Risher & Co.,	do.	do.			
Leechburg Colliery,	D. B. Ashbaugh,	do.	do.			
Buckeye Mine,	John M. Coehran,	do.	do.	2		
Conn. Gas Coal & Coke Co		do.	Slope,	3	1	75
Pittsburgh and Connellsville Gas Coal & Coke Co		do.	Sl. and sh.,	6	4	
White Ball,	Yough. Coal Hollow Coal Co.,	do.	Drift,	1		
South Side,	Westmoreland Coal Company,	do.	do.			
Larimer, No. 1,	do. do.	do.	do.			
Spring Hill,	do. do.	do.	do.			
Foster Slope,	do. do.	do.	Slope,			
Millwood Shaft,	Millwood Coal Company,	do.	Shaft,	1	1	
Fulton Colliery,	G. & W. Jones,	do.	Drift,			
Fair Haven,	Pitts. & Castle Shannon Coal Co.,	do.	do.			
Sterling Works,	Brown & Cochran,	do.	do.			
Six Mile Ferry, No. 1,	H. B. Hays & Bro.,	do.	do.		1	10
Six Mile Ferry, No. 2,	do.	do.	do.		1	10
Beek's Run,	do.	do.	do.	1	1	10

respective Collieries in the First Bituminous Mine District of Pennsyl-
of April, 1879.

Boilers—how many.	Number of miners—men.	Number of miners—boys.	Other persons.	Total number of persons.	Number of mules inside.	Number of mules outside.	Total production in tons.	Ventilation.									
										1st week.		2d week.		3d week.		4th week.	
								Number of openings.	Inlet—size of—feet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.
. .	45	5	5	55	2	1	4,000	4									
2	34	3	2	39	. .	. .	4,700	3	64	. . .	. . .	. . .	. . . .	. .	. . . .	87	7,961
1	50	. .	6	56	4	1	3,200	2	49	200	6,600	. . .		. . .	. . . .	200	6,600
1	110	10	10	130	10	1	10,200	2	40	290	11,600	275	11,000	265	10,600	282	11,300
5	80	. .	8	88	9	1	. . .	2	48	500	24,000	500	21,000	450	21,600	400	19,200
. .	111	13	12	136	4	5	6,400	3	56	. .	14,688						
. .	94	19	9	122	6	. .	. . .	. .	. .	143	4,445	137	4,355	159	5,085	117	3,655
. .	18	. .	3	21	2	1	2,760	2									
2	34	11	8	53	3	. .	3,855	2	60	100	6,000	100	6,000	98	5,880	96	5,760
. .	40	. .	8	48	3	1	2,172										
. .	134	10	17	161	23	1	9,939										
. .	140	26	40	206	13	. .	. . . .	9	. . .	. . .	21,420	. . .	20,060	. . .	22,200	. . .	25,500
. .	150	20	32	202	10	. .	. . . .	3	. . .	. . .	19,890	. . .	21,420	. . .	19,635	. . .	21,670
. .	200	22	55	277	13	3	. . .	3	. . .	. . .	25,000	. . .	26,000	. . .	26,000	. .	26,000
. .	150	5	30	185	10	. .	. . .	7	. . .	. .	27,900	. . .	24,390	. . .	28,770		
. .	28	4	6	38	2	. .	1,200	2	48	140	6,720	130	6,240	120	5,560	130	6,240
. .	22	. .	9	31	4	2	2,290	3	48	170	8,160	205	9,840	140	6,720	140	6,720
2	25	2	5	32	5	1	4,065	. .	42	150	6,552	150	6,552	150	6,552		
										140	6,174	140	6,174	140	6,174		
										180	7,728	180	7,728	180	7,728		
. .	64	5	8	77	5	1	3,600										
. .	186	25	40	251	9	1	7,820	4	. .	109	4,088	110	4,126	112	4,173	112	4,173
. .	159	45	56	260	24	5	5,250	21	48	125	6,000						
. .	125	25	30	180	17	. .	5,416	15	56	100	5,600	70	3,937	85	4,781	100	5,600
1	26	2	9	37	5	. .	2,540	2									
. .	130	10	20	160	8	. .	6,520										
1	150	. .	24	174	7	. .	8,400	4									
. .	15	. .	3	18	3	1	2,639	2	49	123	6,370						
2	120	6	25	151	10	. .	4,628	6	56	330	17,480	275	15,420	276	12,640	266	14,940
3	90	16	30	136	15	4	4,625	6	42	250	10,584	190	8,190	240	10,206	220	9,366
. .	53	. .	7	60	4	. .	4,756	3	49	100	4,900	160	7,480	80	3,920	110	5,390
									25	220	5,500	190	4,750	190	4,750	130	3,250
4	40	5	13	58	2	.	1,275	. .	45	250	11,250	260	11,700	240	10,800	220	9,900
. .	70	10	6	86	5	2	5,760	5	63	250	15,750	230	. . . .	226	. . . .	325	
2	20	3	8	31	3	1											
2	28	2	9	39	4	1											
4	180	15	35	230	8	1	11,213	4	44								
. .	52	7	7	66	4	. .	3,424	2	112	57	6,384	48	5,376	56	6,272	57	6,384
. .	52	4	3	59	2	1	. .	2	35	150	5,775	155	5,967	135	4,733	105	3,780
. .	11		11	22	2	. .	2,000	2									
. .	130	18	29	177	13	. .	5,320	8	64								
. .	40	5	5	50	4	. .	2,500	2	48	100	4,800	100	4,800	90	4,320	100	4,800
2	110	15	22	147	7	. .	8,120	3	45	290	13,050	300	13,500	275	12,375	310	13,950
. .	174	26	17	217	14	4	12,744	4	56	. . .	14,080	. . .	9,100	. . .	9,240	. . .	6,930
. .	60	10	8	78	5	. .	4,800	4	48	180	8,640	170	8,160	200	9,600	240	11,520
2	15	. .	21	36	3	1	1,779	2	49								
2	33	4	3	40	3	3	3,000	. .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	108	9,254
7	78	1	99	178	5	5	3,939	4	64	150	11,872	155	12,182	145	11,562	135	10,941
1	30	4	5	39	3	. .	1,900	3	56	. . .	12,000	. . .	12,000	. . .	12,000	. . .	12,000
. .	100	14	. .	114	. .	. .	8,937										
. .	37	. .	. . .	37	. .	. .	4,106										
. .	29	. .	. . .	29	. .	. .	2,656										
.	81	. .	. . .	81	. .	.	4,544										
6	60	5	8	73	6	. .	. . . .	2	50	300	16,000						
. .	90	10	15	115	9	2	5,000	3									
. .	90	7	3	100	. .	. .	6,663	. .	63	150	9,450	155	9,765	152	9,576	155	9,765
. .	150	. .	30	180	19	7	15,900										
1	125	. .	28	153	7	1	10,511	6	52								
1	152	2	21	175	10	. .	11,037	5	48								
1	180	. .	39	219	18	2	15,366	10	52								

A STATEMENT *of the Names, Power, Capacity, and Ventilation of the respective*

NAME OF COLLIERY.	VENTILATION.									
			1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.	
	Average velocity of air current per month at inlet.	Average velocity of air current per minute per month	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current per minute at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.
Cedar Hill,										
Connellsville Gas Coal Co.,									109	
Union Mines,			150	5,250					140	
Jefferson Mines,	278		225	9,000	214	8,560	208	8,300	214	8,700
Loyalhauna C. and C. Co.,			260	6,240	260	6,240	140	3,360	170	4,080
Streets Run,										
Duquesne,			100	2,780	90	2,520	124	3,380	84	2,260
Rising Sun,										
Knob Colliery,	5,910		83	4,472	86	4,472	85	4,420	84	4,368
Carondolet,										
Enterprise,										
Coal Run,			510	21,700	485	20,465	525	22,000	605	24,950
Shaft No. 1,			430	20,700	465	21,600	415	1,960	440	22,050
Shaft No. 2,			480	23,250	510	25,800	515	25,850	500	26,200
Mines No. 4,			645	27,600	615	24,000	670	28,800		
Pittsburgh Union,	130									
Greensburg Mines,	164									
Lemont Mines,			60	4,500	60	4,500	60	4,500		
William Hodgson,										
Turtle Creek, No. 4,										
Sandy Creek,			100	4,800	100	4,800	90	4,320	90	4,320
Plum Creek,			75	3,600	50	2,400	60	2,880	75	3,600
Latrobe Mines,										
Hampton Mines,										
Youghiogheny,										
Eldorado,										
Green Springs,										
Union Coal Works,										
Saltsburg Coal Company,			75	8,437	70	7,875	75	8,437	80	9,000
			40	7,300	70	12,775	80	14,600	85	15,512
Shafton Mines,	242		130	5,850	130	5,850	125	5,625	130	5,850
Umpire Mines,			233		244		251		250	
Slope No. 1,										
Slope No. 2,										
Cornell & Werling,										
Cumb. and Elk Lick C. Co.,	54½									
Abe Hays,										
Enterprise, (D. & S.,)										
Camden,										
Lane Colliery,			260	4,160	260	4,160	250	4,000	260	4,800
Enterprise, (H. & M.,)										
Amity,										
Leechburg Colliery,	177		160	7,680	150	7,200	150	7,200	170	8,160
Buckeye Mine,										
Conn. Gas Coal and Coke Co.										
Pitts. & Conn. G. C. & C. Co.,			145	11,562	140	11,251	135	10,941	130	10,630
White Ball,				9,000		9,000		9,000		9,000
Southside Mine,				11,960		10,575		11,130		11,550
Larimer, No. 1,										
Spring Hill,				3,800		4,000		2,600		3,500
Foster Slope,				15,600		16,200				
Millwood Shaft,			350	11,000						
Fulton Colliery,										
Fair Haven,	153	145	6,090	148	6,216	147	6,174	145	6,090	
Sterling Works,										
Six-Mile Ferry, No. 1,										
Do. No. 2,										
Beek's Run,										

Collieries in the First Bituminous Mine District of Pennsylvania—Continued.

Ventilation.											
		1st week.		2d week.		3d week.		4th week.			
Average velocity per minute for the month.	Outlet—size of—feet.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Average number of feet passing out per month	How Ventilated.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	By furnace.
. . . .	64	. . .	. . . .	. . .	. . . .	. . .	. . . .	109	9,327	. . .	By steam exhaust.
. . . .	. .	300	9,000	. . .	. . . .	. . .	. . . .	250	. .	. . . .	By furnace.
216	36	300	10,800	290	10,000	294	10,600	278	10,000	. . . .	By furnace and steam.
. . . .	40	140	5,600	140	5,600	150	6,000	150	6,000	. . . .	By steam exhaust.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	By furnace.
. . . .	. .	151	4,770	140	3,800	186	5,220	127	3,290	. . . .	By natural ventilation.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	do.
. . .	30	201	6,040	201	6,040	197	5,920	193	5,800	5,950	By steam exhaust.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	By natural ventilation.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	do.
. . . .	34	630	21,420	590	20,060	650	22,200	750	25,500	. . . .	By furnace.
. . . .	51	330	19,890	420	21,420	385	19,635	425	21,670	. . . .	By fan 12 feet diameter.
. . . .	40	625	25,000	650	26,000	650	26,000	650	26,000	. . . .	do.
. . . .	49	. . .	27,980	. . .	24,390	. . .	28,770	. . .	. . .	. . . .	By furnace.
. . . .	. .	175	6,125	170	5,950	155	5,580	170	5,950	. . . .	do.
. . . .	25	270	6,750	190	4,750	160	4,000	930	4,750	. . . .	By natural ventilation.
. . . .	48	370	17,808	370	17,808	. . .	. . . .	. . .	. .	. . . .	By steam exhaust.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	By furnace.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	By natural ventilation.
. . . .	48	93	4,464	100	4,800	68	3,264	53	2,544	. . . .	do.
. . . .	56	120	6,750	90	5,062	80	4,500	105	5,906	. . . .	do.
. . . .	. . .	. . .	. . . .	. . .	. . .	. . .	. . . .	. . .	. . . .	. . . .	do.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	do.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	do.
. . . .	12	500	6,000	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	do.
. . . .	56	274	15,412	310	17,620	275	12,512	407	22,875	. . . .	do.
. . . .	42	200	8,568	160	6,930	200	8,568	200	8,568	. . .	do.
75	49	270	13,230	230	11,270	210	10,731	250	12,250	11,870	By furnace.
68											
129	98	125	12,250	135	13,230	120	11,760	120	11,760	. . . .	By steam exhaust.
. . . .	49	233	11,471	261	. . . .	252	. . . .	250	. . . .	. . . .	By furnace.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. .	. . .	. . . .	do.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	do.
. . . .	42	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . .	. . . .	do.
. . . .	64	100	6,400	85	5,440	100	6,400	100	6,400	6,160	By basket grate.
. . . .	35	168	5,880	178	6,008	144	4,970	110	3,850	. . .	By furnace.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. .	. . . .	. . .	. . . .	. . .	By natural ventilation.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	do.
. . . .	16	500	8,000	500	8,000	480	7,680	490	7,840	. . . .	By furnace.
. . . .	60	250	15,000	260	15,600	240	14,400	260	15,600	. . . .	By furnace & steam exhaust.
. . . .	56	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	By furnace.
157	48	200	9,600	260	12,480	250	12,000	270	12,960	. . . .	do.
. . . .	16	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	By natural ventilation.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	By steam exhaust.
. . . .	. . .	145	11,562	140	11,251	135	10,941	130	10,630	. . . .	do.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	do.
. . . .	. . .	. . .	23,850	. . .	19,575	. . .	19,122	. . .	20,925	. . .	By furnace.
. . . .	. .	. . .	29,160	. . .	14,700	. . .	15,540	. . .	16,800	. . .	do.
. . . .	. .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	do.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	By fan 12 feet diameter.
. . . .	100	. .	10,000	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	do.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	By natural ventilation.
146	56	155	8,680	158	8,848	160	8,960	157	8,792	. . . .	do.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	do.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	By furnace 7 feet by 12 feet.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	By natural ventilation.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	do.

A STATEMENT *of the Names, Power, Capacity, and Ventilation of the* *vania, for the Month*

NAME OF COLLIERY.	NAME OF OPERATOR.	Character of coal—bituminous or semi-bituminous.	Slope, shaft, or drift.	Pumps—how many.	Number of engines.	Horse power.
Mill Bank,	Laufman & Co.,	Bituminous,	Drift,	1		
Eldorado,	Zuck & Henry,	do.	do.			
Youghiogheny,	James O'Neil,	do.	do.		1	
Streets Run,	J. D. Risher,	do.	do.		1	
Leechburg Colliery,	D. B. Ashbaugh,	do.	do.			
Greensburg Mines,	Greensburg Coal Company,	do.	do.			
Pittsburgh and Connellsville G. C. and C. Co.,		do.	Sh. and sl.,	6	4	
Union Coal Works,	M. Graver & Co., (limited,)	do.	Drift,		3	45
Amity Mine,	J. C. Risher & Co.,	do.	do.			
Lemont Mines,	Ewing, Hanna & Co.,	do.	Slope,	1	1	30
Saltsburg Mines,	Saltsburg Coal Company,	do.	Drift,			
Shaft No. 1,	Penn Gas Coal Company,	do.	Shaft,	1	1	
Shaft No. 2,	do. do.	do.	do.	1	1	
Mines No. 4,	do. do.	do.	Drift,			
Coal Run,	do. do.	do.	do.			
Cornell & Werling,	W. H. Brown's heirs,	do.	do.	2	5	
Deer Park,	Mahoning Coke Co., (limited,)	do.	Slope,	2	2	36
Shafton Mines,	Shafton Coal Company,	do.	Shaft,	1	2	100
Enterprise,	Dillinger & Suttle,	do.	Drift,			
Rising Sun,	Markle & Co.,	do.	do.			
Oak Ridge,	Oak Ridge Coal Co., (limited,)	do.	do.			
Knob Colliery,	Knob Coal Company,	do.	Sh. and sl.,	1	1	30
Sterling Works,	Brown & Cochran,	do.	Drift,			
Carondolet,	Frazer & Frye,	do.	do.			
Hampton Mine,	John McIntyre,	do.	do.		1	
Fair Haven,	Pitts. and Castle Shannon C. Co.,	do.	do.			
Latrobe Mines,	M. Saxman & Co.,	do.	do.			
Cumberland and Elk Lick Coal Company,		Semi-bitum.,	do.			
Spring Hill,	Westmoreland Coal Company,	Bituminous,	do.			
Southside,	do. do.	do.	do.			
Lane Colliery,	Morley & Langdon,	Semi-bitum.,	do.			
Millwood Shaft,	Millwood Coal Company,	Bituminous,	Shaft,	1	1	
Loyalhanna Coal and Coke Company Shaft,		do.	do.	3	2	
No. 4 Mine,	N. Y. and Cleveland G. C. Co.,	do.	Drift,			
Plum Creek Mine,	do. do. do.	do.	do.			
Sandy Creek Mine,	do. do. do.	do.	do.			

respective Collieries in the First Bituminous Mine District of Pennsylvania, for the month of May, 1879.

Boilers—how many.	Number of miners—men.	Number of miners—boys.	Other persons.	Total number of persons.	Number of mules inside.	Number of mules outside.	Total production in tons.	VENTILATION.									
										1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.	
								Number of openings.	Inlet—size of—feet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.
. .	25	1	3	29	2	1	1,069	2	25								
. .	16	. .	4	20	3	1	2,955	3	12	. . .	. . . .	. .	. . . .	. .	. . . .	600	7,200
. .	150	. .	24	174	7	.	9,200										
. .	108	11	12	134	9	2	6,876	3	48	306	14,688	. . .	14,704				
. .	60	8	12	80	5	. .	4,500	4	48	190	8,760	210	1,080	200	9,600	180	8,640
. .	22	. .	9	31	4	2	2,724	2	48	150	7,200	150	7,200	165	7,920	180	8,640
7	80		105	185	5	5	14,898	3	64	115	9,699	130	10,630	125	10,370	135	10,941
3	90	20	30	140	14	4	5,039	. .	42	200	8,400	220	9,366	180	7,770	200	8,400
. .	176	18	21	215	12	3	9,631	2	56	. . .	8,750	. . .	4,340	. . .	4,620		
2	27	2	6	35	5	1	4,623	1	42	150	6,552						
								2		145	6,384						
								3		145	6,384						
. .	53	. .	7	60	4	. .	4,666	2	49	90	4,410	50	2,450	90	4,410	60	2,940
									25	210	5,250	180	4,500	185	4,625	230	5,750
4	150	20	32	202	10	.	. . . .	. .	. . .	.	19,380	. . .	20,910	. . .	20,400	. . .	20,650
4	150	20	50	220	10	3	. . . .	3	. . .	. . .	25,000	. . .	26,000	. . .	26,000		
. .	225	5	30	260	.	. .	. . .	. .	. . .	. . .	28,400	. . .	32,850	. . .	42,600	. . .	33,100
. .	140	26	40	206	13	5	. . . .	10	. .	. .	22,100	. . .	21,590	. . .	22,780	. . .	20,740
4	180	15	34	229	8	1	11,428	4	44								
5	35	1	4	40	4	3	5,400	2	54	. . .	. . . .	300	16,200	300	16,200	250	13,500
									56			400	22,400	350	19,600	400	22,400
4	23	2	14	39	2	. .	961	2	45	270	12,150	260	11,700	240	10,800	200	9,000
. .	12	. .	11	23	2	.	2,100	2									
. .	18	. .	3	21	2	1	4,021										
. .	45		11	56	6	. .	. . . .	3	48	109	5,232	119	5,712	77	4,077	119	5,712
									36	284	9,504	109	3,924	240	8,640	224	8,064
2	46	12	10	68	3	. .	2,730	2	60	96	5,760	96	5,760	97	5,820	96	5,760
. .	137	. .	23	160	19	7	8,000	4									
. .	3	. .	7	10	3	1	3,140										
. .	130	9	20	159	.	.	5,551										
. .	150	10	7	167	6	1	6,180	. .	63	155	9,765	150	9,450	155	9,576	155	9,765
. .	27	3	8	38	5	. .	2,004	2									
. .	50	7	7	64	4	. .	3,018	2	112	34	3,804	34	3,808	51	5,712	48	5,376
. .	. . .	.	. . .	29	.	. .	2,541										
.	. .	.	. . .	140	.	.	11,938										
. .	38	5	. . .	43	5	. .	2,500	2	48	100	4,800	100	4,800	80	3,840	90	4,320
6	60	5	7	72	5	.	. . . .	2	50	200	10,000	300	15,000	about the same			
5	90	3	12	105	10	. .	. . .	2	48	850	16,800	300	14,400	325	15,600	300	14,400
. .	190	25	40	255	9	1	11,176¾	4	. . .	966	36,097	887	33,028	967	35,902	959	35,880
. .	125	30	25	180	16	. .	5,142½	15	56	150	8,434	100	5,625	115	6,468	165	9,281
. .	162	46	56	264	24	5	4,974½	21	48	250	12,000	260	. . . .	275	13,200	275	13,200

A STATEMENT *of the Names, Power, Capacity, and Ventilation in the respective*

NAME OF COLLIERY.	VENTILATION.									
			1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.	
	Average velocity of air current per month at inlet.	Average velocity of air current per minute per month.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current per minute at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.
Mill Bank,	....	....	....	....	....	....	....	....	....	....
Eldorado,	....	....	....	....	....	....	....	....	....	....
Youghiogheny,	....	....	....	....	....	....	....	....	....	....
Street's Run,	....	....	....	....	....	....	....	....	....	....
Leechburg Colliery,	195	....	170	8,160	180	8,640	175	8,400	165	7,920
Greensburg Mines,	161	....	....	....	....	....	....	....	....	....
Pittsburgh and Connellsville G. C. and C. Co.,	126¼	....	110	9,389	120	10,010	120	10,010	125	10,320
Union Coal Works,	....	....	....	....	....	....	....	....	....	....
Amity Mine,	....	....	....	8,750	....	4,345	....	....	....	....
Lemont Mines,	....	....	65	1,896	65	1,896	65	1,896	65	1,896
Saltsburg Mines,	72½	....	80	5,800	80	5,800	85	6,162	....	....
	201		55	11,055	70	14,070	65	13,065		
Shaft, No. 1,	....	....	480	19,000	435	20,400	450	20,175	455	20,310
Shaft, No. 2,	....	....	510	24,100	545	24,900	540	25,200	....	....
Mines, No. 4,	....	....	600	28,050	623	32,000	720	41,700	610	32,950
Coal Run,	....	....	510	21,755	484	21,310	520	21,975	495	20,630
Cornell & Werling,	....	....	....	....	....	....	....	....	....	....
Deer Park,	....	....	....	....	250	14,000	250	14,000	250	14,000
					250	14,000	250	14,000	250	14,000
Shafton Mines,	243	....	140	6,300	140	6,300	125	5,625	120	5,400
Enterprise,	....	....	....	....	....	....	....	....	....	....
Rising Sun,	....	....	....	....	....	....	....	....	....	....
Oak Ridge,	....	....	67	2,280	57	2,280	160	6,400	57	2,280
Knob Colliery,	5,775	....	80	4,200	80	4,200	81	4,252	80	4,200
Sterling Works,	....	....	....	....	....	....	....	....	....	....
Carondolet,	....	....	....	....	....	....	....	....	....	....
Hampton Mine,	....	....	....	....	....	....	....	....	....	....
Fair Haven,	153	....	148	6,216	145	6,090	147	6,174	145	6,090
Latrobe Mines,	....	....	....	....	....	....	....	....	....	....
Cumb. & Elk Lick Coal Co.,	41¾	....	....	....	....	....	....	....	....	....
Spring Hill,	....	....	....	4,500	....	2,500	....	3,500	....	3,000
Southside,	....	....	....	13,020	....	11,970	....	8,220	....	11,130
Lane Colliery,	....	....	260	4,160	260	4,160	250	4,000	250	4,000
Millwood Shaft,	....	....	300	8,000	300	8,000	about	the	same.	....
Loyalhanna C. & C. Co. Shaft No. 4 Mine,	....	....	150	....	140	....	120	....	120	....
Plum Creek Mine,	....	....	80	3,840	90	4,320	70	3,360	90	4,320
Sandy Creek Mine,	265	....	90	4,320	100	4,800	65	3,120	100	4,800

Collieries in the First Bituminous Mine District of Pennsylvania—Continued.

Ventilation.											
		1st week.		2d week.		3d week.		4th week.			
Average velocity per minute for the month.	Outlet—size of—feet.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Average number of feet passing out per month.	How Ventilated.
. . . .	. . .	. . .	. . . . .	. . .	. . . . .	. . .	. . . .	. . .	. . .	. . . .	By small furnace.
. . . .	49	. . .	. . . . .	. . .	. . . . .	. . .	. . . .	147	7,497	. . . .	By natural ventilation.
. . . .	. . .	. . .	. . . . .	. . .	. . . . .	. . .	. . . .	. . .	. . .	. . .	do.
. . . .	. . .	. . .	. . . . .	. . .	. . . . .	. . .	. . . .	. . .	. . .	. . .	By furnace and shaft.
172	60	180	12,800	180	12,800	160	9,600	170	10,200	11,350	Furnace, 24 ft., stack, 68 ft.
. . . .	25	210	5,250	190	4,750	220	5,500	270	6,750	5,562	By natural ventilation.
. . . .	.	110	9,389	120	10,010	120	10,010	125	10,320	. . . .	By steam exhaust.
. . . .	42	180	7,770	190	8,190	165	6,940	190	8,190	7,772	By natural ventilation.
. . . .	56	. .	8,750	. . .	. . . .	. .	. . . .	. .	. . . .	. . . .	By furnace and shaft.
65	48	375	18,048	375	18,048	375	18,348	375	18,348	. . .	Steam exhaust from pump.
. . . .	49	250	12,250	210	10,290	240	11,760	230	11,270	11,392	By furnace and shaft.
. . . .	51	380	19,330	410	20,910	400	20,400	405	20,655	. .	Fan, 12 feet diameter.
. . . .	40	625	25,000	650	26,000	650	26,000	. . .	. .	. . . .	do.
. . . .	49	. . .	32,850	. . .	28,000		42,000	. .	33,100	. . .	Furnace, 56 feet fire bed.
. . . .	34	650	22,100	635	21,590	670	22,780	610	20,740	. . .	Furnace, 48 feet fire bed.
. . . .	42	. .	. . . .	. .	. . . .	. .	. . . .	. .	. . . .	. . .	Furn'e, 30 ft. long, stack, 80 ft
. . . .	56	. . .	. . . .	750	42,000	700	42,000	550	30,800	38,266	Steam exhaust.
. . . .	98	135	13,230	130	12,740	120	11,760	100	9,800	. . . .	By steam exhaust.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . .	. . . .	By natural ventilation.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . .	. . . .	do.
. . . .	40	413	16,520	313	12,520	380	15,200	382	15,280	. . . .	Furnace, 6 ft. by 25 ft. long.
. . . .	30	194	5,820	194	5,820	194	5,820	. .	. . . .	. . . .	Steam exhaust.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	Natural ventilation.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	do.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	do.
. . .	56	158	8,846	155	8,830	160	8,960	157	8,792	. . . .	do.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	do.
. . . .	64	60	3,840	60	3,840	89	5,696	85	5,490	4,716½	Fire basket and shaft.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	By furnace and small shaft.
. . . .	. . .	. . .	20,370	. . .	22,540	. . .	17,100	. . .	22,175	. . . .	By furnace and shaft.
. . . .	16	500	8,000	500	8,000	480	7,680	480	7,680	. . . .	By furnace.
. . . .	100	75	8,000	80	8,000	ab	out the	same	. . . .	. . . .	Fan 12 feet in diameter.
. . . .	48	160	. . . .	150	. . . .	100	. . . .	130	. . . .	. . . .	Steam exhaust.
. . . .	3	343	14,041	344	13,917	373	15,102	374	15,015	. . . .	Natural ventilation.
. . . .	56	150	8,437	120	6,750	110	6,187	170	9,532	. . . .	do.
. . . .	48	80	3,840	77	3,696	60	2,880	60	2,880	3,824	do.

A STATEMENT *of the Names, Power, Capacity, and Ventilation of the* *vania, for the Month*

NAME OF COLLIERY.	NAME OF OPERATOR.	Character of coal—bituminous or semi-bituminous.	Slope, shaft, or drift.	Pumps—how many.	Number of engines.	Horse power.
Wood Mine,	Wettengel & Gormley,	Bituminous,	Slope,		1	
Eldorado,	Zuck & Henry,	do.	Drift,			
McConnell,	Joseph McConnell,	do.	do.			
Latrobe Mines,	M. Saxman, junior, & Co.,	do.	do.		1	
Greensburg Mines,	Greensburg Coal Company,	do.	do.			
Slope No. 1,	Boyle & Hazlett,	do.	Slope,	2	1	60
Slope No. 2,	Boyle & Hazlett,	do.	do.	1	1	60
Lemont Mines,	Ewing, Hanna & Co.,	do.	do.	1	1	30
Deer Park,	Mahoning Coke Company,	do.	do.	2	2	36
Isabella Coke Works,	Isabella Furnace Company,	do.	do.	1	2	
National Mines,	Consolidated Coal and Mining Co.	do.	Drift,	1		
Camp Hill,	D. Steen & Sons,	do.	do.			
Leechburg Colliery,	David B. Ashbaugh,	do.	do.			
Lane Colliery,	Langdon & Morley,	Semi-bitum.,	do.			
Mill Bank,	Laufman & Co.,	Bituminous,	do.	1		
Ocean Mines,	W. L. Scott & Co.,	do.	do.			
Oak Ridge,	Oak Ridge Coal Company,	do.	do.			
Rising Sun,	Markle & Co.,	do.	do.	1		
Union Coal Works,	M. Graver & Co.,	do.	do.		3	30
Umpire Mines,	J. S. Cunningham & Co.,	do.	do.			
Saltsburgh Mines,	Saltsburg Coal Company,	do.	do.			
Nimick Mines,	Thomas Fox,	do.	do.			
Buckeye Mines,	John M. Cochran,	do.	do.	2		
Fort Pitt Mines,	Fort Pitt Coal Company,	do.	do.			
Mount Equity,	Kemble Coal and Iron Company,	Semi-bitum.,	do.			
Loyalhanna,	Loyalhanna Coal and Coke Co.,	Bituminous,	Shaft,	3	2	
Sterling Works,	Brown & Coehran,	do.	Drift,			
Cumberland and Elk Lick Coal Company,		Semi-bitum.,	do.			
Keystone Mine,	W. H. Brown's Heirs,	Bituminous,	do.			
Millwood Shaft,	Millwood Coal Company,	do.	Shaft,	1	1	
Pittsburgh and Connellsville G. C. and C. Co.,		do.	do.	6	4	
Southside,	Westmoreland Coal Company,	do.	Drift,			
Spring Hill,	do. do.	do.	do.			
Northside,	do. do.	do.	do.			
Plum Creek, No. 1,	New York and Clev. G. C. Co.,	do.	do.			
Sandy Creek,	do. do.	do.	do.			
Turtle Creek, No. 4,	do. do.	do.	do.			
Nixon Mines,	Chartlers Valley Coal Company,	do.	do.			
Shaft No. 2,	Penn Gas Coal Company,	do.	Shaft,	1	1	
Coal Run,	do. do.	do.	Drift,			
No. 4 Mine,	do. do.	do.	do.			
Shaft No. 1,	do. do.	do.	Shaft,	1	1	

respective Collieries in the First Bituminous Mine District of Pennsylvania, of June, 1879.

Boilers—how many.	Number of miners—men.	Number of miners—boys.	Other persons.	Total number of persons	Number of mules inside.	Number of mules outside.	Total production in tons.	VENTILATION.								
										1ST WEEK		2D WEEK.		3D WEEK.		4TH WEEK.	
								Number of openings.	Inlet—size of—feet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.
2	38	4	4	46	2	. .	. . . .	3	40	111	4,440						
. .	16	. .	4	20	3	1	6,000	3	12	. . .	. . . .	. . .	.	. .	. .	300	3,648
. .	28	6	3	37	1	1	1.200	2	24	200	4,800	180	4,320	200	4,800	185	4,440
1	29	2	7	38	4	. .	2,018	5									
. .	18	. .	4	22	3	1	1,560	2	42	184	7,728	212	8,904	200	9,240	210	8,820
2	21	2	7	30	3	1	4,356										
2	28	3	10	41	4	1	5,280										
2	26	4	7	37	6	1	5,052	3	42	150	6,500	145	6,342	145	6,342	150	6,500
5	36	1	5	42	5	2	6,000	3	54	250	13,500	250	13,500	250	13,500	250	13,500
4	70	9	12	91	8	. .	7,500	5	42	225	0,450	271	11,382	440	18,480	283	11,886
1	65	8	16	89	11	. .	. . . .	3	38	204	7,752	214	8,132	176	6,688	186	7,068
									48	139	5,560	149	5,960	140	5,960	139	5,560
. .	90	10	16	116	10	1	2,000	4	37	. . .	16,000	. . .	17,000	. . .	14,000	. . .	16,500
. .	65	8	10	83	6	. .	4,900	4	48	220	10,560	200	9,600	240	11,520	210	10,080
. .	38	5	. . .	43	5	. .	3,000	2	48	100	4,800	100	4,800	100	4,800	90	4,320
. .	25	1	5	31	2	1	794	2	40								
. .	130	10	19	159	9	. .	10,000	3	48	205	9,810	. . .	. . . .	. . .	. . . .	204	9,792
. .	60	. .	11	71	6	. .	. . . .	3	36	67							
									48	253							
. .	18	. .	3	21	2	1	3,721	3									
3	90	10	30	130	15	4	5,198	7	42	180	7,770	200	8,568	170	7,350	190	8,140
. .	51	3	5	59	4	1	2,360	5	63	129	8,227	149		150	. .	161	
. .	53	. .	7	60	4	. .	5,488	3	49	40	1,960	30	1,470	90	4,410	40	1,960
									25	210	5,250	235	5,875	235	5,875	270	6,750
. .	19	1	1	21	2	.	731	2	42	. . .	3,500						
2	16	. .	21	37	3	1	2,165	2	49								
. .	45	3	11	59	4	2	3,125	3	42	150	6,300						
.	. . .	. .	. . .	. . .	. .	. .	. . . .	2	33	170	5,610	200	6,600	230	7,590	175	5,775
5	100	10	5	115	8	1	. . .	2	48	300	14,400	360	17,280	260	12,480	160	7,680
. .	132	. .	24	156	20	7	22,000	3									
. .	52	7	7	66	4	. .	2,878	3	112	34	3,808	30	3,360	30	3,360	37	4,144
. .	150	30	43	223	11	. .	10,691	29									
6	60	5	7	72	7	. .	. . . .	2	50	300	13,000	. . .	13,000				
7	89	. .	120	209	5	5	14,221	3	64	110	9,389	75	7,216	120	10,010	135	10,941
. .	185	. .	. . .	185	. .	. .	13,885										
. .	. . .	. .	. . .	29	. .	. .	2,441										
. .	. . .	. .	. . .	106	. .	. .	7,579										
. .	125	25	32	182	17	. .	2,983	15	56	130	7,310	130	7,310				
. .	161	45	54	260	24	5	1,776	24	48	210	10,080	260	12,480				
. .	190	25	40	255	9	1	7,098	4	. . .	929	34,807	946	35,352				
. .	40	2	7	49	2	. .	1,300	2									
4	160	20	50	230	13	3	. . . .	3	. . .	. . .	25,000	. . .	24,000	. . .	18,360	. . .	22,000
. .	140	26	40	106	13	5	. . . .	9	. . .	. . .	22,680	. . .	21,600	. . .	24,120	. . .	22,140
. .	228	5	30	263	10	. .	. . . .	8	. . .	. . .	35,770	. . .	28,900	. . .	29,870	. . .	32,420
4	150	20	32	202	11	. .	. . .	3	. . .	. . .	20,400	. . .	22,185	. .	20,910	. . .	19,635

A STATEMENT *of the Names, Power, Capacity, and Ventilation of the respective*

NAME OF COLLIERY.	VENTILATION.									
			1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.	
	Average velocity of air current per month at inlet.	Average velocity of air current per minute per month.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current per minute at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face or heading	Number of cubic feet per minute passing at or near face of head'g.
Wood Mine,			158	6,536						
Eldorado,										
McConnell,										
Latrobe Mines,										
Greensburg Mines,	206									
Slope No. 1,										
Slope No. 2,										
Lemont Mines,			70	1,944	70	1,944	70	1,944	70	1,944
Deer Park,			200	11,200	200	11,200	200	11,200	200	11,200
Isabella Coke Works,										
National Mines,			156	6,240	166	6,640	156	6,240	166	6,640
			204	8,160	214	8,560	204	8,160	176	7,040
Camp Hill,										
Leechburg Colliery,	217⅛		170	8,160	160	7,680	190	9,120	170	8,760
Lane Colliery,			260	4,160	260	4,160	250	4,000	260	4,160
Mill Bank,										
Ocean Mines,			108	5,184					110	5,280
Oak Ridge,			87	3,480	47	1,880	87	3,480	84	3,360
Rising Sun,										
Union Coal Works,	7,959									
Umpire Mine,			119		141		140		160	
Saltsburgh Mines,	50		75	375	65	3,250	100	5,000	80	4,000
	237		65	15,405	80	18,960	65	15,420	85	20,145
Nimick Mines,										
Buckeye Mines,										
Fort Pitt Mines,										
Mount Equity,	193		90	3,217	110	3,934	130	4,647	125	4,468
Loyalhanna Coal & Coke Co.			124	3,800	100	3,000	110	3,300	100	3,000
Sterling Works,										
Cumberland and Elk Lick Coal Company,										
Keystone Mine,			350	10,000		10,000				
Millwood Shaft,			350	10,000				10,000		
Pitts. & Conn. G. C. & C. Co.	110		95	8,458	60	6,285	100	8,768	120	10,010
Southside,				11,340		10,290		10,080		9,240
Spring Hill,				3,500		2,500		3,300		3,000
Northside,				1,920		3,100		6,800		9,360
Plum Creek, No. 1,			80	3,840	85	4,080				
Sandy Creek,			75	3,600	85	4,080				
Turtle Creek, No. 4,										
Nixon Mines,										
Shaft No. 2,			530	24,600	495	24,120	435	18,300	480	22,100
Coal Run,			525	22,100	505	21,420	535	23,140	540	22,200
No. 4 Mine,			730	34,850	610	28,870	605	29,410	655	32,100
Shaft No. 1,			450	20,380	485	22,000	435	20,100	410	19,700

Collieries in the First Bituminous Mine District of Pennsylvania—Continued.

Ventilation,											
		1st week.		2d week.		3d week.		4th week.			
Average velocity per minute for the month.	Outlet—size of—feet.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out	Average number of feet passing out per month.	How Ventilated.
. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	157	6,280	. . . .	By furnace.
. . . .	49	. .	. . . .	. . . .	. . . .	. . . .	. . . .	74	4,165	. . . .	Natural ventilation.
. . . .	24	175	3,200	180	4,320	176	4,224	178	4,272	. . . .	By furnace.
. . . .	. . . .	. . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	Natural ventilation.
. . . .	25	156	6,552	180	7,560	184	7,728	185	7,770	. . . .	do.
. . . .	. . . .	. .	. . . .	. . . .	. . . .	. . . .	. . . .	. . .	. .	. . . .	By furnace.
. . . .	. . . .	. . .	. . . .	. . . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	do.
1,944	48	375	18,048	375	18,048	375	18,048	. . .	. . . .	. . . .	By steam exhaust.
11,200	56	250	14,000	250	14,000	250	14,000	250	14,000	. . . .	do.
. . .	42	232	9,644	187	7,770	185	9,870	. .	. . .	. . . .	do.
. . . .	30	186	5,580	196	5,880	204	6,120	204	6,120	. . .	Furnace and steam exhaust.
	30	196	5,880	204	6,120	139	4,170	149	5,470		
. . . .	36	. . .	21,000	. . .	22,500	. . .	23,200	. . .	20,020	. . . .	By furnace.
. . . .	60	180	12,800	170	10,200	190	11,400	180	10,800	. . . .	By furnace, 24 feet long.
. . . .	16	500	8,000	500	8,000	475	7,680	480	7,680	. . . .	By furnace.
. . . .	25	. .	. . . .	. . .	. . . .	. .	. . . .	. . .	. . . .	. . . .	do.
. . . .	48	201	9,648		. . . .	203	9,744	. . .	. . . .	. . . .	do.
. . . .	40	323	12,900	352	14,120	363	14,520	480	19,200	. . . .	do.
. . . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	.	.	. . . .	By natural ventilation.
. . . .	42	160	6,792	190	8,148	155	6,962	175	7,518	. . . .	do.
. . . .	56	171	. . .	310	.	205	.	306	. .	. . .	By furnace.
. . . .	49	210	10,290	210	10,290	270	13,230	250	12,250	. . . .	do.
. . .	42	. . .	. . . .	. . .	. . .	. .	. . . .	. . .	. . . .	. . . .	do.
. . . .	42	. . .	. . . .	. . .	. . . .	. . .	. . . .	. .	. . . .	. . . .	Natural ventilation.
. . . .	36	200	7,200	. . .	.	. . .	. . . .	. . .	.	. . . .	do.
. . . .	25	230	5,692	270	6,682	300	7,275	275	6,805	. . . .	do.
. . . .	50	130	6,500	110	5,500	100	5,000	80	4,000	. . . .	Steam exhaust.
. . . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	Natural ventilation.
. . . .	64	60	3,840	54	3,456	54	3,456	65	4,160	3,728	By fire basket.
. . . .	. . .	. . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	Natural ventilation.
. . . .	100	. . .	10,000	. . .	. . . .		. . . .	. . .	. . . .	. . . .	Fan, 72 feet diameter.
. . . .	72	95	8,458	60	6,285	100	8,768	120	19,010	. . . .	Steam exhaust.
. . . .	. .	. . .	20,900	. . .	18,675	. . .	18,675	. . .	16,875	. . . .	By furnace.
. . . .	. . . .	. . .	. . . .	. .	. . . .	. . .	. . . .	. .	. . .	. . . .	do.
. . . .	. . .	. . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	.	do.
. . . .	56	140	7,890	150	8,435	. . .	. . . .	. . .	. . . .	. . . .	Natural ventilation.
. . . .	. . .	60	2,880	80	3,840	. .	. . . .	. . .	. . . .	. . . .	do.
. . . .	. . .	254	10,119	278	11,087	. .	. . . .	. . .	. . . .	. . . .	do.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. .	. . . .	. . .	. . . .	. . . .	By furnace.
. . . .	40	625	2,500	600	24,000	360	18,370	550	22,000	. . . .	By fan, 12 feet diameter.
. . . .	36	630	12,680	600	21,6 0	670	24,120	615	22,140	. . .	By furnace.
. . . .	. . .	. . .	35,170	. .	28,900	. . .	29,870	. .	32,4 0	. . . .	do.
. . . .	51	400	20,400	435	22,185	410	20,910	385	19,635	. . .	By fan, 12 feet diameter.

A STATEMENT *of the Names, Power, Capacity, and Ventilation of the* *vania, for the Month*

NAME OF COLLIERY.	NAME OF OPERATOR.	Character of coal—bituminous or semi-bituminous.	Slope, shaft, or drift.	Pumps—how many.	Number of engines.	Horse power.
Isabella Coke Works and Furnace Company,		Bituminous,	Slope,	1	1	
Ocean Mine,	W. L. Scott & Co.,	do.	Drift,			
Saltsburg Coal Company,		do.	do.			
Cornell & Werling,	W. H. Brown's Heirs,	do.	do.	2	5	
Loyalhanna Coal & C. Co		do.	Shaft,	3	2	
Greensburg Mines,	Greensburg Coal Company,	do.	Drift,			
Nixon Mines,	Chartiers Valley Coal Company,	do.	do.			
Latrobe Mines,	M. Saxman & Co.,	do.	do.		1	
Rising Sun,	Markle & Co.,	do.	do.			
Osceola,	Osceola Coal Company,	do.	do.			
Black Diamond,	Lindsay & McCausland,	do.	do.			
Connellsville Gas C. Co.,		do.	Slope,	3	1	75
Union Coal Works,	M. Graver & Co.,	do.	Drift,		3	40
Leechburg Colliery,	D. B. Ashbaugh,	do.	do.			
Standard Mine,	A. A. Hutchinson & Bro.,	do.	Slope,	2	1	40
National Mines,	Consolidated Coal Company,	do.	Drift,	1		
Oak Ridge,	Oak Ridge Coal Company,	do.	do.			
Lane Colliery,	Langdon & Morley,	Semi-bitum.,	do.			
Youghiogheny Mine,	James O'Neil,	Bituminous,	do.			
Lemont Mine,	Hogsett, Hanna & Co.,	do.	Slope,	1	1	30
Enterprise,	Dillinger & Tuttle,	do.	Drift,			
Nimick,	Thomas Fox,	do.	do.			
Amieville Mine,	N. J. Bigley,	do.	do.			
Hampton,	John McIntyre,	do.	do.		1	
Carondolet,	Frazer & Frye,	do.	do.			
Mansfield Coal & Coke Co		do.	do.	1		
Millwood Shaft,	Millwood Coal Company,	do.	Shaft,	1	1	
Northside,	Westmoreland Coal Company,	do.	Drift,			
Southside,	Westmoreland Coal Company,	do.	do.			
Spring Hill,	Westmoreland Coal Company,	do.	do.			
Cumberland and Elk Lick Coal Company,		Semi-bitum.,	do.			
Fair Haven,	Pitts'gh & Castle Shannon Coal Co	Bituminous,	do.			
Fort Pitt,	Fort Pitt Coal Company,	do.	do.			
Eldorado,	Zuck & Henry,	do.	do.			
Keystone Mine,	W. H. Brown's Heirs,	do.	do.			
Armstrong's Mine,	C. H. Armstrong & Son,	do.	do.			
Buckeye Mines,	John M. Cochran,	do.	do.	2		
Plum Creek,	N. Y. & Cleveland Gas Coal Co,,	do.	do.			
Sandy Creek,	N. Y. & Cleveland Gas Coal Co.,	do.	do.			
Oak Hill, No. 4,	N. Y. & Cleveland Gas Coal Co.,	do.	do.			
Oak Hill, No. 3,	N. Y. & Cleveland Gas Coal Co.,	do.	do.			
Coal Run,	Penn Gas Coal Company,	do.	do.			
No. 4 Mines,	Penn Gas Coal Company,	do.	do.			
Shaft, No. 1,	Penn Gas Coal Company,	do.	Shaft,	1	1	
Shaft, No. 2,	Penn Gas Coal Company,	do.	do.	1	1	

respective Collieries in the First Bituminous District of Pennsyl-
of July, 1879.

Boilers—how many.	Number of miners—men.	Number of miners—boys.	Other persons.	Total number of persons.	Number of mules inside.	Number of mules outside.	Total production in tons.	VENTILATION.									
										1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.	
								Number of openings.	Inlet—size of—feet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.
4	62	7	13	82	7	. .	11,549	3	42	180	7,560	272	11,424	200	8,400		
. .	140	6	22	168	9	. .	8,000	3	48	190	9,120						
. .	59	. .	7	63	4	. .	5,495	3	49	186	9,210	45	2,205	55	2,695	50	2,450
												175	4,375	210	5,250	170	4,250
4	80	10	24	114	5	1	4,660	4	42								
5	90	10	5	105	8	1	. .	2	48	300	14,400	225	11,800	250	12,000	230	11,040
. .	17		4	21	3	1	2,271	2	42	170	7,140	255	10,710	175	7,350	200	8,400
. .	40	3	8	51	2	1	1,600	2	36								
1	28	2	9	39	4	. .	1,900	2									
. .	18		3	21	2	1	3,800	3									
. .	130	10	12	152	11	. .	1,500	5	. . .	170	9,180						
. .	22	2	2	26	2	. .	. . . .	.	35	85	2,905						
2	33	3	2	38	3	3	5,000	3	64	.	. . .	. . .	. . . .	. .	. . . .	100	8,768
3	100	14	34	148	9	4	6,780	7	42	270	8,568	229	9,366	180	7,770	200	8,568
. .	60	8	10	78	6	. .	5,050	4	48	180	8,640	210	10,080	190	9,120	190	9,120
5	20	. .	1	21	3	1	3,045										
1	70	10	8	88	10	3	. . . .	3	38	181	6,878	171	6,498	186	7,063	149	5,662
									40	109	4,360	104	4,160	109	4,360	129	5,160
. .	62	. .	11	73	6	1	. . . .	3	48								
. .	38	5	. . .	43	5	. .	3,000	2	48	100	4,800	100	4,800	80	3,840	100	4,800
. .	80		. . .	80	4	. .	6,240										
2	27	4	3	34	5	1	4,226	3	42	440	19,320						
. .	11	. .	12	23	2	. .	2,000										
. .	20	2	1	23	2	. .	914	2	42	. . .	3,900						
. .	80	6	14	100	2	. .	2,337	4	52	100	5,200	125	6,500	110	5,720	90	4,680
1	65	6	17	88	4	. .	3,142										
. .	49	. .	9	58	4	1	2,121										
. .	160	5	21	186	9	2	7,957	13	48	. . .	25,000						
6	55	5	8	68	7	. .	. . .	2	50	300	12,000						
. .	82	. .	. . .	82	.	. .	6,772										
. .	185	15	. . .	200	. .	. .	15,172										
. .	29	. .	. . .	29	. .	. .	2,432										
. .	48	6	7	61	4	. .	3,085	2	112	51	5,112	45	5,040	45	5,040	30	3,360
. .	90	7	3	100	7	1	6,321	3	63	155	9,765	150	9,450	152	9,576	155	9,765
. .	40	4	4	48	2	2	. . .	3	40	100	4,000			110	4,400		
. .	16	. .	3	19	3	1	2,805	3	12	. . .	. . . .	. . .	. . . .	. . .	. . . .	300	3,648
. .	160	50	55	265	12	. .	8,940										
. .	90	9	10	109	6	2	5,000										
2	16	. .	22	38	3	1	2,174	3	49								
. .	125	25	25	175	15	. .	4,583	15	56	. .	. . . .	175	9,873	165	9,280	155	8,718
. .	133	36	52	221	19	5	4,986	24	48	. . .	. . . .	170	8,160	275	13,000	275	13,000
. .	160	15	9	184	12	1	10,260	4									
. .	46	9	9	64	2	1	1,313	3	42	. . .	. . .	. . .	.	370	15,940	380	15,960
. .	140	26	40	206	13	. .	. . . .	10	. .	. . .	22,320	. . .	25,420	. . .	23,700	. . .	22,830
. .	180	5	30	215	12	. .	. . . .	7	. . .	. . .	32,000	. . .	38,400	. . .	34,600	. . .	32,900
4	150	20	32	202	12	. .	. . . .	3	. . .	. . .	23,460	. . .	22,950	. . .	26,000	. . .	20,900
4	200	22	55	277	13	3	. . . .	3	. . .	. . .	22,000	. . .	36,000	. . .	34,000	. . .	44,000

A STATEMENT *of the Names, Power, Capacity, and Ventilation of the respective*

NAME OF COLLIERY.	VENTILATION.									
			1ST WEEK.		2D WEEK		3D WEEK.		4TH WEEK.	
	Average velocity of air current per month at inlet.	Average velocity of air current per minute per month.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current per minute at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of herd'g.
Isabella Coke Works and Furnace Company,										
Ocean Mine,										
Saltsburg Coal Company,			75	3,562	85	4,037	80	3,800		
			65	12,695	70	14,787	90	19,012		
Cornell & Werling,										
Loyalhanna Coal & Coke Co.			150	4,500	200	6,000	190	5,700	120	3,600
Greensburg Mines,										
Nixon Mines,										
Latrobe Mines,										
Rising Sun,										
Osceola,										
Black Diamond,										
Connellsville Gas Coal Co.,										
Union Coal Works,										
Leechburg Colliery,			160	7,680	180	8,640	160	7,680	155	7,640
Standard Mine,										
National Mines,			166	6,640	156	6,240	149	5,960	144	5,760
			144	5,760	109	4,360	156	6,240	134	5,360
Oak Ridge,			86	3,440	67	2,680	80	3,200	67	2,680
Lane Colliery,			260	4,160	260	4,160	230	3,680	260	4,160
Youghiogheny Mine,										
Lemont Mine,										
Enterprise,										
Nimick,										
Amieville Mine,	106¼		100	5,200	125	6,500	110	5,720	90	4,680
Hampton,										
Carondolet,										
Mansfield Coal and Coke Co.				15,000						
Millwood Shaft,			300	9,000						
Northside,						10,700		11,700		11,200
Southside,				8,820		9,290		9,030		7,350
Spring Hill,				3,000		7,500		6,900		7,000
Cumberland and Elk Lick Coal Company,	42¾									
Fair Haven,	753		148	6,216	145	6,090	147	6,174	145	6,090
Fort Pitt,										
Eldorado,										
Keystone Mine,										
Armstrong's Mine,										
Buckeye Mines,										
Plum Creek,					80	3,840	80	3,840	70	3,360
Sandy Creek,	240				80	3,840	80	3,840	75	3,600
Oak Hill, No. 4,										
Oak Hill, No. 3,										
Coal Run,			500	22,100	535	25,420	530	23,700	495	22,830
No. 4 Mines,			710	30,900	720	38,250	685	34,000	710	32,810
Shaft No. 1,			500	23,000	485	22,450	495	26,000	450	20,325
Shaft No. 2,			400	20,950	350	18,000		18,100		24,000

Collieries in the First Bituminous District of Pennsylvania—Continued.

VENTILATION.											
		1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.			
Average velocity per minute for the month.	Outlet—size of—feet.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Average number of feet passing our per month.	VENTILATION.
. . . .	42	225	9,450	126	5,292	126	5,296	. .	. . . .	. . . .	Steam exhaust.
. . . .	48	. .	. . . .	. . .	. . . .	. . .	. . . .	201	9,648	. . . .	Furnace ventilation.
. . . .	49	220	10,780	210	10,290	230	11,270	220	10,780	. . . .	do.
. . . .	42	. . .	. . . .	. . .	. . . .	. . .	. . . .	. .	. . . .	. . . .	do.
. . . .	50	130	6,500	100	5,000	190	9,500	200	10,000	. . . .	Steam exhaust.
. . . .	. . .	200	6,000	250	7,500	240	7,200	250	7,500	. . . .	Natural ventilation.
. . . .	35	. . .	. . . .	. .	. . . .	. .	. . . .	. .	. . . .	. . .	Furnace ventilation.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	Natural ventilation.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. .	. . . .	. . .	do.
. . . .	. . .	.	. . . .	. .	. . . .	. . .	. . . .	. .	. . . .	. . .	do.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	do.
. . . .	64	. . .	. . . .	. .	. . . .	. . .	. . . .	110	9,389	. . .	Steam exhaust.
. . . .	42	180	7,770	190	8,190	165	6,940	190	8,190	. . . .	Natural ventilation.
. . . .	60	160	9,600	180	10,800	170	10,200	170	10,200	. . . .	Furnace ventilation.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. .	. . . .	. . . .	Steam exhaust.
. . .	30	154	4,620	149	4,470	149	4,470	156	4,680	. . . .	do.
	30	144	4,320	129	3,870	156	4,680	124	3,720		
. . . .	40	402	16,080	383	15,320	360	14,400	422	16,880	. . . .	Furnace ventilation.
. . . .	16	500	8,000	500	8,000	400	6,400	500	8,000	. . . .	do.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	Natural ventilation.
. . . .	48	235	11,472	240	11,664	235	11,472	. . .	. . . .	. . . .	Steam exhaust.
. . . .	. . .	. .	. . . .	. . .	. . .	. . .	. . . .	. . .	. . . .	. . . .	Natural ventilation.
. . . .	42	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	Furnace ventilation.
106½	56	110	6,160	130	7,280	125	7,000	120	6,720	6,790	Natural ventilation.
. . . .	. . .	. .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	Furnace ventilation.
. . . .	. . .	. .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	Natural ventilation.
. . . .	. . .	.	25,000	. . .	. . . .	. . .	. .	. . .	. . . .	. . . .	Furnace ventilation.
. . . .	100	100	10,000	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	Fan ventilation.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	Furnace ventilation.
. . . .	. . .	. . .	16,825	. . .	18,225	. . .	18,530	. . .	16,425	. . .	do.
. . . .	. . .	. . .	. . . .	. .	. . . .	. .	. . . .	. . .	. . . .	. . . .	do.
. . . .	64	92	5,888	80	5,120	80	5,120	53	3,392	4,880	Fire basket.
146	56	158	8,848	155	8,680	160	8,960	157	8,792	. . . .	Natural ventilation.
. . . .	30	120	3,600	.	. . . .	150	4,500	. . .	. . . .	. . . .	do.
. . . .	49	. . .	. . . .	. . .	. . . .	. . .	. . . .	74	4,165	. . . .	do.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. .	. . . .	. . .	. . . .	. . .	do.
. . . .	46	165	7,590	. . .	. . . .	. .	. . . .	. . .	. . . .	. . . .	Furnace ventilation.
. . . .	49	. .	. . . .	. . .	. . . .	. .	. . . .	. . .	. . . .	. . . .	Natural ventilation.
. . . .	56	. .	. . . .	130	7,312	120	6,750	110	6,187	. . .	do.
129	48	. . .	. . . .	60	3,240	75	3,600	70	3,360	3,400	do.
. . . .	. .	. . .	. . . .	. . .	. . . .	. .	. . . .	. .	. . .	. . . .	do.
. . . .	45	. . .	. . . .	. . .	. .	340	15,300	342	15,390	. . . .	Furnace ventilation.
. . . .	. .	. . .	. . . .	620	22,320	710	25,560	635	22,860	. . . .	do.
. . . .	49	. .	32,000	. . .	38,400	. .	34,600	. . .	32,900	. . . .	do.
. . . .	51	460	23,460	450	22,950	510	26,000	410	20,900	. . . .	Fan ventilation.
. . . .	40	450	22,000	900	36,000	850	34,000	1,100	44,000	. . . .	do.

A STATEMENT *of the Names, Power, Capacity, and Ventilation of the* *vania, for the Month*

NAME OF COLLIERY.	NAME OF OPERATOR.	Character of coal—bituminous or semi-bituminous.	Slope, shaft, or drift.	Pumps—how many.	Number of engines.	Horse power.
Rising Sun,	Markle & Co.,	Bituminous,	Drift,	1		
Nixon Mines,	Chartiers Valley Coal Company,	do.	do.			
Mill Bank,	Laufman & Co.,	do.	do.	1		
Saltsburg Mines,	Saltsburg Coal Company,	do.	do.			
Street's Run,	J. D. Risher,	do.	do.			
Leechburg Colliery,	D. B. Ashbaugh,	do.	do.			
Oak Ridge,	Oak Ridge Coal Co., (Limited,)	do.	do.			
Hill Farm,	Dunbar Furnace Company,	do.	Slope,		2	40
Cornell & Werling,	W. H. Brown's Heirs,	do.	Drift,	2	5	
Pennsville Mine,	A. H. Sherriek,	do.	do.	1	1	8
National Mines,	Consolidated Coal & Mining Co.,	do.	do.	1		
Isabella Coke Works,	Isabella Furnace Company,	do.	Slope,	1	1	
Osceola Mine,	Oseeola Coal Company,	do.	Drift,			
Union Coal Works,	M. Graver & Co.,	do.	do.		3	40
Deer Park Mines,	Mahoning Coal and Coke Co.,	do.	Slope,	2	2	36
Lane Colliery,	Morley & Langdon,	Semi-bitum.,	Drift,			
Nimick Mine,	Thomas Fox,	Bituminous,	do.			
Buckeye Mine,	John M. Cochran,	do.	do.	2		
Slope No. 1,	Boyle & Hazlett,	do.	Slope,	2	1	60
Slope No. 2,	do.	do.	do.	3	2	60
Eldorado Mine,	Zuck & Henry,	do.	Drift,			
Mount Equity,	Kemble Coal and Iron Company,	Semi-bitum.,	do.			
Enterprise Mine,	Dillinger & Suttle,	Bituminous,	do.			
Amieville Mine,	N. J. Bigley,	do.	do.			
Beek's Run,	H. B. Hays & Bro.,	do.	do.	2	1	10
Six Mile Ferry, No. 1,	do.	do.	do.		1	10
Six Mile Ferry, No. 2,	do.	do.	do.		1	12
Shaft No. 1,	Penn Gas Coal Company,	do.	Shaft,	1	1	
Shaft No. 2,	do. do.	do.	do.	1	1	
Mine No. 4,	do. do.	do.	Drift,			
Coal Run Mine,	do. do.	do.	do.			
Southside Mine,	Westmoreland Coal Company,	do.				
Northside Mine,	do. do.	do.	do.			
Spring Hill,	do. do.	do.	do.			
Fort Pitt Mines,	Fort Pitt Coal Company,	do.	do.			
Hampton Mines,	John McIntyre,	do.	do.			
Enterprise Mines,	V. Harding,	do.	Shaft,	1	1	30
Millwood Shaft,	Millwood Coal and Coke Co.,	do.	do.	1	1	
White Ball,	Yough. Coal Hollow Coal Co.,	do.	Drift,	1		
Coal Valley,	William Stone's Heirs,	do.	do.			
Cumberland and Elk Lick Coal Company,		Semi-bitum.,	do.			
McClosky Road,	W. H. Brown's Heirs,	Bituminous,	do.			
Keystone Mines,	do. do.	do.	do.			
Sandy Creek,	N. Y. & Cleveland Gas Coal Co.,	do.	do.			
Plum Creek,	do. do.	do.	do.			
Oak Hill, No. 3,	do. do.	do.	do.			
Oak Hill, No. 4,	do. do.	do.	do.			

respective Collieries in the First Bituminous Mine District of Pennsyl-
of August, 1879.

Boilers—how many.	Number of miners—men.	Number of miners—boys.	Other persons.	Total number of persons.	Number of mules inside.	Number of mules outside.	Total production in tons.	VENTILATION.							
										1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.	
								Number of openings.	Inlet—size of—feet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.
. .	18	. .	3	21	2	1	3,702	2	48								
. .	40	2	9	51	2	1	1,800	2	42								
. .	23	1	5	29	2	1	1,004	2	48								
. .	59	. .	8	67	5	. .	5,886	3	49	60	2,940	50	2,450	50	2,450	55	2,695
									25	270	6,720	175	4,375	165	4,125	205	5,125
. .	112	13	12	137	5	4	6,648	3	33	. . .	4,488	. . .	10,920	.	4,488		
. .	60	8	12	80	5	. .	5,500	4	48	180	8,640	160	7,880	150	7,200	190	9,120
. .	56	. .	11	67	6	. .	. . . .	3	48	130	6,140	253	12,144	110	5,280	136	6,522
									36	110	3,960	58	2,088	194	6,084	129	4,554
4	31	6	4	41	2	7	5,446	2	48	180	8,640	135	6,480	165	7,920	155	7,440
4	175	10	32	217	6	1	2,291	4	44								
1	. .	.	. . .	. . .	. .	.	. . .	2	42	. . .	4,546	. . .	. . . .	. .	3,960		4,080
1	60	8	9	77	10	3	. . . .	3	38	156	5,928	149	5,662	149	5,662	154	5,852
									40	129	5,160	134	5,360	109	4,360	114	4,560
2	60	6	15	81	6	. .	6,000	3	42	252	10,584	213	8,946				
. .	125	10	20	155	11	. .	6,000	4	48	170	9,180	. .	. . . .	. . .	. .	138	5,520
3	120	15	30	165	9	4	7,650	6	42	170	7,350	190	8,148	200	8,556	180	7,770
5	31	. .	4	35	4	2	. . . .	2	56	300	16,800	250	14,000	300	16,800	350	19,600
. .	38	5	. .	43	5	.	2,500	2	48	100	4,800	100	4,800	90	4,320	90	4,320
. .	21	1	1	23	3	.	1,160	2	42	. . .	3,700						
2	24	. .	42	66	4	1	3,016	2	49								
2	21	1	8	30	3	1	4,330	3									
2	31	5	15	51	5	2	5,280	3									
. .	14	. .	3	17	3	1	2,600	3	12	. . .	. .	. . .	. . .	. .		300	3,648
. .	. . .	. . .	. .		. .	. .	. . . .	2	27½	190	5,225	190	5,225	180	4,950	180	4,950
. .	11	2	10	23	2	. .	2,000	2									
. .	40	3	11	54	2	. .	3,522	5	48	120	5,760	100	4,800	90	4,320	90	4,320
2	138	. .	49	187	12	2	4,953	10	52								
. .	120	. .	22	142	5	1	6,180	6	52								
. .	124	. .	20	144	7	. .	6,154	5	52								
4	150	20	32	202	10	. .	. . . .	3	. . .	. . .	21,600	. . .	19,440	. .	22,140	. . .	20,790
4	200	22	55	277	13	3	. . . .	3	. . .	. . .	36,000	. . .	36,800	. . .	35,000	. . .	35,000
. .	180	5	30	215	12	. .	. . . .	7	. . .	. . .	28,800	. . .	32,610	. . .	29,520	. . .	33,840
. .	140	26	40	206	13	5	. . . .	10	. . .	. . .	20,400	. . .	21,590	. . .	19,890	. . .	23,460
. .	89	. .	. . .	89	. .	. .	9,296										
. .	29	. .	. . .	29	. .	. .	2,483										
. .	25	2	4	31	3	2	.	3	42	100	4,200						
1	120	10	20	150	5	. .	5,470										
1	18	. .	1	19	1	. .	. . . .	2	20	320	6,400	275	5,500	300	6,000	200	4,000
6	60	6	7	73	7	. .	. . .	2	50	300	15,000						
1	70	5	16	91	10	1	6,000	3	56	125	7,000	125	7,000	125	7,000	125	7,000
. .	80	8	15	103	5	4	1,400	3	48								
. .	47	5	7	59	4	. .	39,521	3	112	40	4,480	44	4,927	45	5,040	51	5,712
. .	65	20	18	103	8	. .	2,616										
. .	120	25	33	178	9	. .	4,462										
. .	146	40	59	245	19	5	8,141	24	48	287	13,776	300	14,400	287	13,776	225	10,800
. .	125	30	25	180	17	. .	7,049	15	56	180	10,125	175	9,843	150	8,437	165	9,281
. .	55	10	5	70	3	1	2,911	3	42	300	12,600	250	10,500	270	11,340	301	12,642
. .	176	15	40	231	9	1	11,578	4	. .	443	19,907	458	18,488	452	18,344	473	19,162

A STATEMENT *of the Names, Power, Capacity, and Ventilation of the respective*

NAME OF COLLIERY.			VENTILATION.							
			1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.	
	Average velocity of air current per month at inlet.	Average velocity of air current per minute per month.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current per minute at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.
Rising Sun,										
Nixon Mines,										
Mill Bank,										
Saltsburg Mines,	53		125	6,625	90	4,770	80	4,240	105	5,565
	203		75	15,225	70	14,210	70	14,210	70	14,210
Street's Run,										
Leechburg Colliery,	170		150	7,200	140	6,720	130	6,290	160	7,880
Oak Ridge,			67	2,680	86	3,440	80	3,200	67	2,680
Hill Farm,			80	4,480	70	3,920	75	4,200	65	3,640
Cornell & Werling,										
Pennsville Mine,				5,196				6,174		7,200
National Mines,			149	5,960	139	5,560	139	5,560	149	5,960
			139	5,560	144	5,960	129	5,160	139	5,560
Isabella Coke Works,										
Osceola Mine,			109	4,965					101	4,040
Union Coal Works,										
Deer Park Mines,			200	11,200	190	10,640	200	11,200	210	11,760
Lane Colliery,			260	4,160	260	4,160	250	4,000	250	4,000
Nimick Mine,										
Buckeye Mine,										
Slope, No. 1,										
Slope, No. 2,										
Eldorado Mine,										
Mount Equity,	185		110	3,932	100	3,575	110	3,932	90	3,217
Enterprise Mine,										
Amieville Mine,	100		120	5,760	100	4,800	90	4,320	90	4,320
Beck's Run,										
Six Mile Ferry, No. 1,										
Six Mile Ferry, No. 2,										
Shaft, No. 1,			425	21,200	430	19,400	430	19,400	410	20,810
Shaft, No. 2,			675	35,200	685	36,750	640	35,000	675	35,400
Mine, No. 4,			585	28,410	570	31,425	495	29,490	530	32,100
Coal Run Mine,			400	20,000	425	21,500	420	19,900	405	23,420
Southside Mine,				8,870		9,870		9,845		10,920
Northside Mine,										4,300
Spring Hill,				7,000		8,000		7,500		7,000
Fort Pitt Mines,										
Hampton Mines,										
Enterprise Mines,										
Millwood Shaft,			350	10,000		10,000				
White Ball,			125	7,000	125	7,000	125	7,000	125	7,000
Coal Valley.										
Cumberland and Elk Lick Coal Company,	45									
McClosky Road.										
Keystone Mines.										
Sandy Creek,			100	4,800	130	6,240	110	5,280	87	4,176
Plum Creek,			100	4,800	80	3,840	78	3,360	80	3,840
Oak Hill, No. 3,										
Oak Hill, No. 4,										

Collieries in the First Bituminous Mine District of Pennsylvania—Continued.

Ventilation.											
		1st week.		2d week.		3d week.		4th week.			
Average velocity per minute for the month.	Outlet—size of—feet.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Average number of feet passing out per month.	Where located.
. . . .	. .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	Westmoreland county.
. . . .	42	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	Allegheny county.
. . . .	. .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	Westmoreland county.
100	49	265	12,986	220	10,780	225	11,025	230	11,270	11,515	do.
71											
. . . .	44	. . .	19,712	. . .	17,636	. .	15,624	. . .	. . . .	. . . .	Allegheny county.
145	60	150	9,000	140	8,400	140	8,400	170	10,200	. . . .	Westmoreland county.
. . . .	40	294	11,680	365	14,500	360	14,400	402	16,080	. . .	Allegheny county.
. . . .	56	180	10,080	175	9,800	160	8,960	170	9,520	. . . .	Fayette county.
. . . .	42	. . .	. . . .	. . .	. . . .	. . .	. .	. . .	. . .	. . . .	Allegheny county.
. . . .	. . .	. . .	6,010	.	. . . .	. . .	7,200	. .	7,500	. . . .	Fayette county.
. . . .	30	322	9,660	285	8,550	253	7,590	248	7,440	. . . .	Allegheny county.
. . . .	42	194	8,148	119	4,998	165	6,930	91	3,822	. . . .	Westmoreland county.
. . . .	48	156	7,488	. . .	. . . .	. . .	. . .	138	7,456	. . . .	do.
. . . .	42	155	6,962	175	7,518	170	7,350	160	6,972	. . . .	Allegheny county.
. . . .	56	500	23,000	450	25,200	500	28,000	600	33,600	. . . .	Fayette county.
. . . .	16	500	8,000	500	8,000	480	7,680	480	7,680	. . . .	Bedford county.
. . . .	42	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	Allegheny county.
. . . .	49	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	Westmoreland county.
. . . .	. .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	do.
. . . .	. .	. . .	8,000	. . .	7,500	. . .	7,000	.	8,000	. . . .	do.
. . . .	49	. . .	. . . .	. . .	. . . .	. .	.	74	4,165	. . .	Fayette county.
. . . .	30	300	7,325	310	7,572	320	7,820	320	7,820	312½	Bedford county.
. . . .	. .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. .	. . . .	. . . .	Westmoreland county.
. . . .	48	120	5,760	100	4,800	90	4,320	90	4,320	. . . .	do.
. . . .	. .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. .	. . . .	. . . .	Allegheny county.
. . . .	. .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. .	. . . .	. . . .	do.
. . . .	. .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. .	. . . .	. . . .	do.
. . . .	54	400	21,600	360	19,440	410	22,140	338	20,790	. . . .	Westmoreland county.
. . . .	54	900	36,000	920	36,800	875	35,000	900	36,000	. . . .	do.
. . . .	72	400	28,800	435	32,610	410	29,520	470	33,840	. . . .	do.
. . . .	34	600	20,400	635	21,590	585	19,890	690	23,460	. . . .	do.
. . . .	. .	. . .	18,500	. . .	18,250	. . .	19,250	. . .	21,500	. . . .	do.
. . . .	. .	. . .	. .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	do.
. . . .	. .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	do.
. . . .	35	150	5,250	. . .	. . . .	. .	. . . .	. . .	. . . .	. . . .	Allegheny county.
. . . .	. .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	do.
. . . .	. .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	do.
. . . .	100	100	10,000	. . .	. . . .	. . .	.	. . .	. . . .	. . .	Westmoreland county.
7,000	36	144	5,184	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	do.
. . . .	64	70	4,460	77	4,920	80	5,120	90	5,760		Somerset county.
. . . .	. . .	90	4,320	100	4,800	100	4,800	70	3,360	4,320	Allegheny county.
. . . .	56	165	9,281	190	10,687	160	9,000	160	9,000	. . . .	do.
. . . .	. . .	225	9,450	200	8,400	230	9,660	275	11,275	. . . .	do.
. . . .	. . .	348	14,041	344	13,917	373	15,102	374	15,014	. . . .	do.

A STATEMENT *of the Names, Power Capacity, and Ventilation of the*
vania, for the Month

NAME OF COLLIERY.	NAME OF OPERATOR.	Character of coal bituminous or semi-bituminous.	Slope, shaft, or drift.	Pumps—how many.	Number of engines.	Horse power.
Buckeye Mines,	John M. Cochran,	Bituminous,	Drift,	2		
American Mines,	F. H. Coursin,	do.	do.			
National Mines,	National Coal Co., Limited,	do.	do.	1		
Camden Mines,	George Lysle & Sons,	do.	do.			
Cornell & Werling,	W. H. Brown's Heirs,	do.	do.	2	5	
Carondolet,	Frazer & Frye,	do.	do.			
Sterling Works,	Brown & Cochran,	do.	do.			
Jefferson Mines,	Foster, Clark & Wood,	do.	do.	1		
Lane Colliery,	Morley & Langdon,	Semi-bitum.,	do.			
Lemont Mines,	Hogsett, Hanna & Co.,	Bituminous,	Slope,	1	1	30
Green Springs,	Redman & Fawcett,	do.	Drift,		1	36
Osceola Mines,	Osceola Coal Company,	do.	do.			
Millwood Shaft,	Millwood Coal and Coke Co.,	do.	Shaft,	1	1	
Rising Sun,	Markle & Co.,	do.	Drift,			
Union Coal Works,	M. Graver & Co., limited,	do.	do.	1	3	40
Amieville Mine,	N. J. Bigley,	do.	do.	1		
Hill Farm,	Dunbar Furnace Company,	do.	Slope,		1	40
Oak Ridge Mine,	Oak Ridge Coal Co., Limited,	do.	Drift,			
Mill Bank,	Laufman & Co.,	do.	do.	1		
Amity Mine,	J. C. Risher,	do.	do.			
Knob Colliery,	Knob Coal Company,	do.	Slope,	1	1	30
Leechburg Mine,	D. B. Ashbaugh,	do.	Drift,			
Ocean Mine,	W. L. Scott & Co.,	do.	do.			
Saltsburg Mines,	Saltsburg Coal Company,	do.	do.			
Eldorado Mine,	Zuck & Henry,	do.	do.			
Connellsville G. C. Co.,		do.	Slope,	3	1	75
Mansfield Coal & Coke Co.		do.	Drift,		1	12
	Jones & Watkins,	do.	do.			
Youghiogheny Mines,	James O'Neil,	do.	do.	1	1	
Enterprise Mine,	Dillinger & Suttle,	do.	do.			
Northside Mine,	Westmoreland Coal Company,	do.	do.			
Southside Mine,	do. do.	do.	do.			
Spring Hill,	do. do.	do.	do.			
Enterprise Works,	V. Harding,	do.	Shaft,	1	1	
Nimick,	Thomas Fox,	do.	Drift,			
Plum Creek,	N. Y. & Cleveland Gas Coal Co.,	do.	do.			
Sandy Creek,	do. do.	do.	do.			
Oak Hill, No. 3,	do. do.	do.	do.			
Oak Hill, No. 4,	do. do.	do.	do.			
Allequippa,	Whigham, Bailey & Co.,	do.	do.			
William Stone's,	William Stone's Heirs,	do.	do.			
Hampton Mines,	John McIntyre,	do.	do.		1	
Banner Works,	Gamble & Risher,	do.	do.			
Cumberland and Elk Lick Coal Co.,		Semi-bitum.,	do.			

respective Collieries in the First Bituminous Mine District of Pennsyl-
of September, 1879.

Boilers—how many.	Number of miners—men.	Number of miners—boys.	Other persons.	Total number of persons.	Number of mules inside.	Number of mules outside.	Total production in tons.	VENTILATION.									
										1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.	
								Number of openings.	Inlet—size of—feet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.
2	26	. .	42	68	4	2	3,475	2	49								
. .	50	3	3	56	3	1	. . . .	2									
1	50	8	10	68	8	3	. . . .	2	38	. . .	. . . .	. .	. . . .	149	5,667	149	5,667
									40					129	5,160	129	5,160
. .	125	10	39	174	9	4	8,000										
4	180	16	35	231	8	1	7,108	4	42½								
. .	48	. .	7	55	4	. .	3,083										
. .	116	22	24	162	19	7	24,600										
1	75	5	6	86	5	1	3,629	2	40	. . .	. . . .	340	13,600	310	12,400	290	11,600
. .	38	5	. . .	43	5	. .	2,500	2	48	100	4,800	85	4,080	85	4,080	100	4,800
2	32	1	7	40	5	1	4,545	. .	. . .	. . .	. . . .	. . .	. . . .	120	5,334	125	5,544
														120	5,334	130	5,712
														135	5,922	135	5,922
2	80	6	20	106	6	. .	. . . .	4	56	320	17,980	275	15,420	276	12,640	266	14,940
. .	120	10	20	150	10	. .	5,000	4	. . .	180	8,640	. . .	. . . .	. . .	. . .	130	4,550
6	60	5	8	73	7	. .		2	50	300	15,000						
. .	19	. .	3	22	2	1	3,647	3									
3	120	30	30	180	9	5	4,448	8	42	180	7,770	190	8,048	180	6,930	170	7,350
.	50	3	11	64	2	. .	3,863	5	48	85	4,080	85	4,080	80	3,840	100	4,800
4	27	7	4	38	2	1	5,747	2	48	190	9,120	195	9,360	250	12,000	230	11,840
. .	65	. .	12	77	6	. .	. . . .	3	48	97	4,644	85	4,160	47	2,256	37	1,776
									36	142	5,112	57	2,052	238	8,568	270	8,720
1	23	1	5	29	2	1	1,140	2	20								
. .	95	10	25	130	9	2	10,962	3	56	. . .	7,120	. . .	6,240	. . .	750	. . .	4,940
											6,220		16,0.0		13,280		12,500
2	30	4	7	41	4	. .	1,096	2	60	102	6,120	100	6,000	102	6,120	98	5,480
. .	65	10	12	87	6	. .	5,500	4	48	180	8,640	180	8,640	160	7,680	190	9,120
. .	144	6	23	173	9	. .	10,000	3	48	190	9,312	195	9,552	. .	. . .	190	9,312
. .	64	. .	8	72	5	. .	5,821	3	49	65	3,185	75	3,675	40	1,960	80	3,920
									25	155	3,875	230	3,450	250	6,250	150	3,750
. .	16	. .	3	19	3	1	2,220	3	12	. .	. . . .	. . .	. . .	. . .	. . . .	300	3,648
2	33	3	3	39	3	3	5,000	2	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	114	9,637
1	150	10	31	191	9	2	6,077	16	48	90	4,320						
. .	40	6	10	56	3	1	2,000	4									
1	50	. .	10	60	4	.	3,200	4									
. .	11	. .	12	23	2	. .	1,900	2									
. .	. . .	. .	.	93	. .	.	. . . .	4									
. .	. . .	. .	. .	206	. .	. .	. . .	4									
. .	. . .	. .	. .	30	. .	. .	. . . .	3									
1	20	. .	1	21	1	. .	800	2	20	300	6,000	375	7,500	375	7,500	325	6,500
. .	29	1	3	33	3	. .	1,813	2	56		3,800						
. .	225	30	25	180	18	. .	8,176	15	56	190	10,687	180	10,125	205	11,530	200	11,250
. .	139	43	65	247	24	5	8,127	24	48	275	13,200	237	11,376	275	13,200	287	13,776
. .	50	10	5	65	3	1	3,281	3	42	320	13,440	380	15,960	300	12,600	360	15,120
. .	170	20	40	230	9	1	11,225	4	. . .	960	35,020	883	32,920	961	35,802	943	35,811
. .	60	2	8	70	6	. .	4,819	5									
. .	98	10	15	123	5	4	2,560	3	48								
. .	150	12	20	182	10	. .	8,019	3									
. .	50	10	6	66	2	. .	2,000	4	48								
. .	91	12	10	113	8	. .	11,885	2	112	60	6,720	60	6,720	67	7,504	67	7,504

A STATEMENT *of the Names, Power, Capacity, and Ventilation of the respective*

NAME OF COLLIERY.	VENTILATION.									
			1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.	
	Average velocity of air current per month at inlet.	Average velocity of air current per minute per month	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current per minute at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.
Buckeye Mines,										
American Mines,										
National Mines,							149	5,960	139	5,560
							156	6,240	196	7,840
Camden Mines,										
Cornell & Werling,										
Carondolet,										
Sterling Works,										
Jefferson Mines,					275	11,000	249	9,960	225	9,000
Lane Colliery,			260	4,160	240	3,840	240	3,840	260	4,160
Lemont Mines,										
Green Springs,										
Osceola Mines,			90	8,100					60	5,400
Millwood Shaft,			350	10,000						
Rising Sun,										
Union Coal Works,										
Amieville Mine,			90	3,600	100	4,000	85	3,400	110	4,400
Hill Farm,			90	5,040	120	6,720	135	7,560	90	5,040
Oak Ridge Mine,			146	5,840	67	2,680	128	5,120	135	5,400
Mill Bank,										
Amity Mine,										
Knob Colliery,			74	3,848	73	3,796	74	3,848	73	3,796
Leechburg Mine,			160	7,680	150	7,200	140	6,720	170	8,160
Ocean Mine,										
Saltsburg Mines,			85	5,525	125	8,125	90	5,850	85	5,525
			60	11,700	75	14,625	70	13,650	85	16,575
Eldorado Mine,										
Connellsville Gas Coal Co.,										
Mansfield Coal and Coke Co.			78	3,744						
Jones & Watkins,										
Youghlogheny Mines,										
Enterprise Mine,										
Northside Mine,				6,220		3,260		6,580		6,560
Southside Mine,				9,450		10,500		9,350		9,350
Spring Hill,				7,000		7,500		7,000		8,000
Enterprise Works,										
Nimick,										
Plum Creek,			100	4,800	90	4,320	105	5,040	90	4,560
Sandy Creek,			90	4,320	103	4,944	110	5,280	105	5,040
Oak Hill, No. 3,										
Oak Hill, No. 4,										
Allequippa,										
William Stone's,										
Hampton Mines,										
Banner Works,										
Cumb. and Elk Lick C. Co.,										

Collieries in the First Bituminous Mine District of Pennsylvania—Continued.

VENTILATION.											
		1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.			
Average velocity per minute for the month	Outlet—size of—feet.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet	Number of cubic feet per minute passing out.	Average number of feet passing out per month.	HOW VENTILATED.
. . . .	36	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	Steam exhaust.
. . . .	. . .	. . .	. . . .	. . .	. . . .	.	. . . .	.	. . . .	. . . .	Furnace ventilation.
. . . .	30	. . .	. . . .	. . .	. . . .	253	7,990	313	9,390	. . . .	Steam exhaust.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	Natural ventilation.
. . . .	42½	. . .	. . . .	. . .	. . . .	. .	. . . .	. . .	. . . .	. . . .	Furnace ventilation.
. . . .	. .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	Natural ventilation.
. . . .	. .	. . .	. . . .	.	. . . .	. . .	. . . .	. . .	. . .	. . . .	do.
. . . .	36	. . .	. . . .	334	12,024	305	10,980	290	10,440	. . . .	Steam exhaust.
. . . .	16	500	8,000	450	7,200	450	7,200	500	8,000	. . . .	Furnace ventilation.
. . .	48	. . .	. . .	. . .		350	16,848	360	17,280	. . . .	Steam exhaust.
. . . .	56	274	15,112	310	17,020	275	12,512	407	22,875	. . .	Natural ventilation.
. . . .	. . .	120	5,040	. . .	. . . .	. . .	. . .	100	3,000	. . .	do.
. . . .	100	100	10,000	. . .	. . .	. . .	. . . .	. . .	. . . .	. . . .	Fan 12 feet diameter.
. . . .	. . .	. . .	. . . .	. . .	. . .	. . .	. . .	. . .	. . . .	. . . .	Natural ventilation.
. . .	42	160	6,930	180	7,770	140	6,132	160	6,930	. . . .	do.
. . . .	28	150	4,200	145	4,060	190	5,320	180	5,040	. . . .	do.
. . . .	56	190	10,640	220	12,320	240	13,440	290	11,760	. . . .	Furnace ventilation.
. . . .	40	333	13,320	343	14,920	357	14,280	375	14,920	. . .	do.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	do.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . .	. . . .	do.
. . . .	30	205	6,150	201	6,030	205	6,150	183	5,510	. . . .	Steam exhaust.
. . . .	60	150	9,000	150	9,000	140	8,400	170	10,200	. .	Furnace ventilation.
. . . .	48	. . .	. . . .	. . .	. . . .	. . .	. . . .	220	10,752	. . . .	do.
. . . .	49	220	10,780	240	11,760	220	10,780	220	10,780	. . . .	do.
. . . .	42	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . .	. . . .	Natural ventilation.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. .	. . . .	124	10,258	. . . .	Steam exhaust.
. . . .	48	100	4,800	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	Furnace ventilation.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . .	. . .	. . . .	. . . .	do.
.	. . .	. . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . .	. . . .	Natural ventilation.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. .	. . . .	. . .	. . . .	. . . .	do.
. . . .	. . .	. . .	.	. .	. . . .	. .	. . . .	. . .	.	. . . .	do.
. . . .	. . .	. .	19,900	. . .	20,750	. . .	21,750	. .	21,500	. . . .	Furnace ventilation.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . .	. . .	. . . .	. . . .	do.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . .	. . .	. . .	. . . .	Steam exhaust.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	Furnace ventilation.
. . . .	56	190	10,968	190	10,687	200	11,250	190	10,687	. . . .	Natural ventilation.
. . . .	48	87	4,176	100	4,800	100	4,800	100	4,800	. . . .	do.
. . . .	45	300	13,500	350	15,750	380	17,100	360	16,200	. . . .	Furnace ventilation.
. . . .	. . .	340	13,941	336	13,901	363	14,902	372	14,994	. . . .	do.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	do.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	Natural ventilation.
. . . .	. .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	Furnace ventilation.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	Natural ventilation.
. . . .	64	105	6,720	105	6,720	117	7,488	117	7,488	. . . .	Fire basket.

A STATEMENT *of the Names, Power, Capacity, and Ventilation of the*
vania, for the Month

NAME OF COLLIERY.	NAME OF OPERATOR.	Character of coal—bituminous or semi-bituminous.	Slope, shaft, or drift.	Pumps—how many.	Number of engines.	Horse power.
Coal Run,	Penn Gas Coal Company,	Bituminous,	Drift,			
Mine No. 4,	do. do.	do.	do.			
Shaft No. 1,	do. do.	do.	Shaft,	2	2	
Shaft No. 2,	do. do.	do.	do.	2	2	
American Works,	F. H. Coursen,	do.	Drift,			
Knob Colliery,	Knob Coal Company,	do.	Slope.	1	1	3
Mill Bank,	Laufman & Co.,	do.	Drift,	1		
Osceola Mine,	Osceola Coal Company,	do.	do.			
Union Coal Works,	M. Graver & Co., Limited,	do.	do.	1	2	50
Amieville Mine,	N. J. Bigley,	do.	do.			
Oak Ridge Mine,	Oak Ridge Coal Co., Limited,	do.	do.			
Carondolet Mine,	Frazer & Frye,	do.	do.			
Saltsburg Mines,	Saltsburg Coal Company,	do.	do.			
National Mine,	National Coal Company, Limited,	do.	do.	1		
Isabella Coke Works,	Isabella Furnace Company,	do.	do.	1	1	
Amity, No. 1,	J. C. Risher & Co.,	do.	do.			
Amity, No. 2,	J. C. Risher & Co.,	do.	do.			
Leechburg Colliery,	D. B. Ashbaugh,	do.	do.			
White Ball,	Yough. Coal Hollow Coal Co.,	do.	do.	1		
Hill Farm,	Dunbar Furnace Company,	do.	Slope,		2	40
Rising Sun,	Markle & Co.,	do.	Drift,			
William Stone's,	William Stone's Heirs,	do.	do.			
Nimick,	Thomas Fox,	do.	do.			
Conard Shaft,	R. B. Wigton,	Semi-bitum.,	Shaft,	2	2	40
Northside,	Westmoreland Coal Company,	Bituminous,	Drift,			
Southside,	do. do.	do.	do.			
Spring Hill,	do. do.	do.	do.			
Banner,	Gamble & Risher,	do.	do.			
Buckeye Mine,	John M. Cochran,	do.	do.	2		
Lemont Mines,	Hogsett, Hanna & Co.,	do.	Slope,	1	1	30
Sterling Works,	Brown & Cochran,	do.	Drift,			
Youghiogheny Mine,	James O'Neil,	do.	do.		1	
Glendale Mine,	S. B. Gregg,	do.	do.			
Union Valley,	Jacob Legler,	do.	do.			
Millwood Shaft,	Millwood Coal and Coke Co.,	do.	Shaft,	1	2	
Armstrong Mine,	C. H. Armstrong & Son,	do.	Drift,			
Sandy Creek,	New York and Clev. G. C. Co.,	do.	do.			
Plum Creek,	do. do.	do.	do.			
Oak Hill, No. 3,	do. do.	do.	do.			
Oak Hill, No. 4,	do. do.	do.	do.			
Anchor Mine,	H. C. Frick & Co.,	do.	Slope,	2	1	
Valley Mine,	do.	do.	Drift,	1		
Enterprise Coal Works,	V. Harding,	do.	Shaft,	1	1	30
Latrobe Mine,	M. Saxman, junior, & Co.,	do.	Drift,	1	1	

respective Collieries in the First Bituminous Mine District of Pennsyl-
of October, 1879.

Boilers—how many.	Number of miners—men.	Number of miners—boys.	Other persons.	Total number of persons.	Number of mules inside.	Number of mules outside.	Total production in tons.	VENTILATION.								
										1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.	
								Number of openings.	Inlet—size of—feet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.
. .	154	26	42	222	15	1	. . . .	9	. . .	. . .	22,270	. . .	24,140	. . .	21,420	. . .	22,950
. .	200	5	30	235	14	. .	. . . .	7	. . .	. . .	31,410	. . .	26,375	. . .	26,450	. . .	28,310
4	180	20	36	236	14	. .	. . . .	3	. . .	. .	24,480	. . .	20,900	. . .	22,185	. . .	21,930
4	200	22	55	277	13	3	. . . .	3	. . .	. . .	36,000	. . .	36,800	. . .	35,200	. . .	36,000
. .	30	5	4	39	3	1	9,000	2	49								
2	. . .	. .	1	1	3	. .	. . . .	2	60	100	6,000	102	6,120	102	6,120	104	6,240
. .	23	1	5	29	2	1	1,130										
. .	110	25	14	149	10	. .	6,000	. .	. . .	. . .	. . . .	.	. .	. . .	. . .	100	5,280
3	120	15	31	166	13	6	9,710	7	42	200	8,576	170	7,350	190	8,148	200	8,568
. .	50	3	9	62	2	. .	. . . .	5	48	75	3,500	80	3,840	75	3,560	70	3,360
. .	71	. .	13	84	6	. .	. . . .	3	48	110	5,280	97	4,560	156	7,488	176	8,448
									36	142	5,112	115	4,140	136	4,860	90	3,000
. .	50	. .	7	57	3	1	4,447	3									
. .	68	. .	8	76	5	. .	5,817	3	49	. . .	8,410	. . .	7,890	. . .	6,400	. .	9,135
1	50	8	9	67	7	3	. .	3	38	. .	9,922	. . .	10,042	. . .	11,868	. . .	12,258
4	61	14	13	88	6	.	7,000	3	42	130	5,460	183	7,686	165	6,930	110	4,620
. .	75	10	20	105	7	3	3,845	4	56	. .	7,500	. . .	7,560	. . .	6,340	. . .	5,660
. .	. .	. .	. .	. .	. .	. .	. .	3	. . .	. . .	6,500	. . .	6,440	. . .	7,860	. . .	8,460
. .	70	10	10	90	. .	. .	5,450	4	48	190	9,120	200	9,600	210	10,080	200	9,600
1	70	10	8	88	8	. .	3,000	3	56	175	10,000	175	10,000	175	10,000	175	10,000
4	26	7	5	38	2	1	5,832	2	48	140	6,720	170	8,160	265	12,720	255	12,240
. .	20	. .	3	23	2	1	4,000										
. .	25	. .	6	31	1	1	480										
. .	33	1	1	35	3	. .	1,872	2	42	. . .	3,800						
2	16	. .	5	21	3	. .	1,056	3	137	. . .	9,000	. . .	8,000	. . .	7,000	. . .	8,000
. .	95	. .	. . .	95	. .	. .	. . . .	4	. . .	. . .	7,500	. . .	6,460				
. .	204	. .	. . .	204	. .	. .	. . . .	3									
. .	. .	. .	. .	32													
. .	50	5	11	66	3	. .	3,568	2	48								
2	26	. .	45	71	4	2	3,872	2	49								
2	29	2	7	38	5	1	5,095	3	42	295	12,432	295	12,432	300	12,600	300	12,600
. .	112	22	25	159	. .	. .	26,946	4	42								
1	70	. .	10	80	5	. .	4,000	5	48								
. .	11	1	2	14	1	. .	444	2	46								
. .	14	2	2	18	1	. .	100	2	40								
6	55	5	8	68	8	. .	. .	2	50	300	16,000	300	16,000				
. .	100	10	10	120	6	3	5,000	3	48								
. .	150	40	57	247	24	5	9,130	24	48	210	10,010	255	12,240	250	12,000	260	12,480
. .	130	30	25	185	20	. .	8,545	15	56	200	11,250	185	10,406	210	11,812	205	11,550
. .	50	10	10	70	3	1	2,884	3	42	400	16,800	397	16,674	299	12,558	387	16,254
. .	175	20	40	235	9	1	9,628	4	. . .	. . .	8,600	. . .	9,000	. . .	7,500	. . .	6,000
5	30	. .	7	37	8	3	. . . .	2	49	. .	. . . .	. . .	. . . .	. . .	. . . .	157	7,693
. .	30	. .	4	34	3	. .	. . . .	2	45½	. . .	. . . .	. . .	. . . .	. . .	. . . .	108	4,725
1	20	. .	1	21	1	. .	1,000	2	20	250	5,000	400	8,000	350	7,000	625	12,500
1	42	3	11	56	7	. .	5,550	2	48								

A STATEMENT *of the Names, Power, Capacity, and Ventilation in the respective*

NAME OF COLLIERY.	VENTILATION.									
			1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.	
	Average velocity of air current per month at inlet.	Average velocity of air current per minute per month.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current per minute at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.
Coal Run,			530	22,400	495	23,795	570	21,215	500	23,120
Mine No. 4,			600	29,895	515	26,010	530	26,210	535	28,500
Shaft No. 1,			500	23,400	400	21,020	450	21,635	415	21,900
Shaft No. 2,			400	20,000	435	19,720	410	17,200	405	21,200
			320	15,000	380	16,345	405	18,140	300	14,100
American Works,										
Knob Colliery,			86	4,498	88	4,576	88	4,576	90	4,680
Mill Bank,										
Osceola Mine,									80	4,056
Union Coal Works,										
Amieville Mine,			80	3,200	90	3,600	90	3,600	75	3,000
Oak Ridge Mine,			165	6,600	140	5,600	67	2,680	127	5,080
Carondolet Mine,										
Saltsburg Mines,			85	10,200		19,135		15,460		18,230
National Mine,				12,200		12,200		13,100		
Isabella Coke Works,										
Amity, No. 1,										
Amity, No. 2,										
Leechburg Colliery,			180	8,640	190	9,120	190	9,120	180	8,640
White Ball,			55	3,000	55	3,000	55	3,000	55	3,000
Hill Farm,			95	4,655	80	3,920	200	9,800	185	9,065
Rising Sun,										
William Stone's,										
Nimick,										
Conard Shaft,				5,000		3,860		8,200		5,000
Northside,										
Southside,				7,770		8,820		6,930		9,450
Spring Hill,				7,000		7,300		7,500		9,500
Banner,										
Buckeye Mine,										
Lemont Mines,										
Sterling Works,										
Youghiogheny Mine,										
Glendale Mine,										
Union Valley,										
Millwood Shaft,			350	11,000						
Armstrong Mine,										
Sandy Creek,			90	4,320	150	7,200	90	4,320	90	4,320
Plum Creek,			110	5,280	85	4,080	120	5,760	135	6,480
Oak Hill, No. 3,										
Oak Hill, No. 4,										
Anchor Mine,										
Valley Mine,										
Enterprise Coal Works,										
Latrobe Mine,										

Collieries in the First Bituminous Mine District of Pennsylvania.—Continued.

Average velocity per minute for the month.	Outlet—size of—feet.	Ventilation. 1st week. Velocity of air current per minute at outlet.	1st week. Number of cubic feet per minute passing out.	2d week. Velocity of air current per minute at outlet.	2d week. Number of cubic feet per minute passing out.	3d week. Velocity of air current per minute at outlet.	3d week. Number of cubic feet per minute passing out.	4th week. Velocity of air current per minute at outlet.	4th week. Number of cubic feet per minute passing out.	Average number of feet passing out per month.	How Ventilated.
....	34	655	22,270	710	24,140	630	21,420	675	22,950	....	Furnace ventilation.
....	...	...	31,410	.	26,375	..	26,450	..	28,310	...	do.
....	51	490	24,480	410	20,910	435	22,185	430	21,930	....	Fan 12 feet diameter.
....	40	900	36,000	920	36,800	880	35,200	900	36 000	....	do.
.....	...	.	....	...	....	...	...	....	....	...	Furnace ventilation.
...	30	201	6,036	205	6,150	205	6,150	209	6,270	....	Steam exhaust.
....	...	...	....	..	...	.	....	...	....	....	Furnace ventilation.
.....	...	...	....	100	5,280				..	....	Natural ventilation.
....	42	180	7,770	160	6,972	180	7,770	190	8,148	...	do.
....	28	150	4,200	140	3,920	180	5,040	115	3,320	....	do.
....	40	380	15,200	343	13,720	343	13,720	333	13,320	...	Furnace ventilation.
....	...	...	....	...	....			...		....	do.
....	49	230	11,270	225	10.025	210	10,290	240	11,760	....	do.
....	30	253	7,590	234	7,020	303	9,090	357	10,710	....	Steam exhaust.
...	42	136	5,712	.	....	223	9,760	...	....	..	do.
....	...	...	....	...	...	...	....	...	....	....	Furnace ventilation.
.....	...	...	....	...	....	...	....	...	...	....	do.
....	60	180	10,800	200	12,000	190	11,400	200	12,000	...	do.
....	36	275	10,000	277	10,000	277	10,000	277	10,000	....	Steam and furnace.
...	56	95	8,400	155	8,680	260	14,560	240	13,440	....	Furnace ventilation.
....	...	...	....	...	....	...	....	...	....	....	Natural ventilation.
....	...	...	....	...	....	...	....	...	....	....	do.
....	42	...	....	...	....	...	....	...	....	...	Furnace ventilation.
....	...	...	....	...	....	...	....	...	....	....	Steam exhaust.
....	...	...	....	...	....	...	....	...	....	....	Natural ventilation.
....	...	...	16,250	...	18,750	..	15,100	...	18,825	...	Furnace ventilation.
....	...	...	....	...	....	...	....	...	....	....	do.
....	48	..	....	...	....	...	....	..	...	...	Natural ventilation.
....	36	...	....	...	....	...	....			....	Steam exhaust.
....	48	290	13,968	290	13,968	300	14,400	300	14,400	....	do.
....	38	...	....	...	...	...	....	...	....	....	Natural ventilation.
....	40	...	....	...	....	...	....	...	....	....	do.
....	38	...	....	...	....	...	....	...	....	....	do.
....	25	...	....	...	....	...	....	...	....	....	do.
....	100	100	10,000	...	....	...	....	...	....	....	Fan 12 feet diameter.
....	42	...	....	...	....	...	....	...	....	....	Furnace ventilation.
....	...	70	3,360	125	6,000	78	3,744	76	3,648	....	Natural ventilation.
....	56	190	9,687	170	9,562	220	12,375	2 0	11,812	....	do.
....	45	378	17,010	366	16,470	386	17,370	369	16,605	....	Furnace ventilation.
....	..	...	8,900	.	6,900	...	9.000	...	8,400	....	Natural ventilation.
....	108	...	....	...	....	...	....	110	11,880	....	Steam exhaust.
....	42	...	....	...	....	...	....	148	6,216	....	Furnace ventilation.
....	..	...	....	...	....	...	....	...	....	....	Steam exhaust.
....	...	...	....	...	....	...	....	...	....	....	Natural ventilation.

A STATEMENT *of the Names, Power, Capacity, and Ventilation of the vania, for the Month*

NAME OF COLLIERY.	NAME OF OPERATOR.	Character of coal—bituminous or semi-bituminous.	Slope, shaft, or drift.	Pumps—how many.	Number of engines.	Horse power.
Knob Colliery,	Knob Coal Company,	Bituminous,	Slope,	1	1	30
Enterprise Mine,	Dillinger & Suttle,	do.	Drift,			
Buckeye Mine,	John M. Coehran,	do.	do.	2		
Osceola Mines,	Osceola Coal Company,	do.	do.			
Deer Park Mines,	Mahoning Coke Company,	do.	Slope,	3	2	60
Pittsburgh and Connellsville Gas Coal & Coke Co		do.	Sl. and sh.,	6	4	
Weinman,	Jacob Weinman,	do.	Drift,			
Youghiogheny Mines,	James O'Neil,	do.	do.		1	
Shaft No. 1,	Penn Gas Coal Company,	do.	Shaft,	1	1	
Shaft No. 2,	do. do.	do.	do.	1	1	
No. 4 Mines,	do. do.	do.	Drift,			
Coal Run,	do. do.	do.	do.			
Amieville,	N. J. Bigley,	do.	do.			
Mill Bank,	Laufman & Co.,	do.	do.	1		
Valley Works,	H. C. Frick & Co.,	do.	do.	2		
Ferguson Mines,	do.	do.	Slope,	2	2	20
Anchor Mine,	do.	do.	do.	1	1	
M. Graver's,	M. Graver & Co., Limited,	do.	Drift,		3	50
Nimick,	Thomas Fox,	do.	do.			
Latrobe Mines,	M. Saxman, junior, & Co.,	do.	do.		1	
Saltsburg Mines,	Saltsburg Coal Company,	do.	do.			
Hampton Mines,	John McIntyre,	do.	do.		1	
Leechburg Colliery,	D. B. Ashbaugh,	do.	do.			
Conard Shaft,	R. B. Wigton,	Semi-bitum.,	Shaft,	2	2	40
	Gamble & Risher,	Bituminous,	Drift,			
William Hodgson,	Blackburn & Nort,	do.	do.			
Nixon Mines,	Chartiers Valley Coal Company,	do.	do.			
Isabella Coke Works,	Isabella Furnace Company,	do.	Slope,	1	1	
Hill Farm,	Dunbar Furnace Company,	do.	do.		2	40
Lemont Furnace,	Hogsett, Hanna & Co.,	do.	do.	1	2	
Rising Sun Works,	Markle & Co.,	do.	Drift,			
Black Diamond,	Lindsay & McCausland,	do.	do.			
Oak Ridge Mines,	Oak Ridge Coal Co., Limited,	do.	do.			
Camp Hill,	David Steen & Sons,	do.	do.	1	2	60
Coal Bluff,	Patterson & Co.,	do.	do.			
Glendale Mine,	S. B. Gregg,	do.	do.			
Enterprise,	O'Neil & Co.,	do.	do.			
Brier Hill,	J. D. Santers,	do.	do.			
Sterling Works,	Brown & Cochran,	do.	do.			
Black Diamond,	Lindsey & McCausland,	do.	do.			

respective Collieries in the First Bituminous Mine District of Pennsyl-
of November, 1879.

Boilers—how many.	Number of miners—men.	Number of miners—boys.	Other persons.	Total number of persons.	Number of mules inside.	Number of mules outside.	Total production in tons.	VENTILATION.								
										1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.	
								Number of openings.	Inlet—size of—feet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.
2	12	. .	4	16	2	. .	516	2	60	100	6,000	102	6,120	103	6,180	101	6,060
. .	10	. .	11	21	2	. .	1,700	3									
2	27	. .	4	31	4	2	3,562	2	49	. . .	. . . .	. . .	. . . .	. . .	. . . .	201	3,000
. .	120	15	2	137	10	. .	3,000	4	. . .	. . .	. . . .	. . .	. .	. . .	. . . .	250	8,750
5	33	. .	4	37	5	2	4,000	2	56	300	16,800	350	19,600	360	20,160	370	20,720
									54	200	10,800	250	13,500	250	13,500	260	14,040
7	82	. .	128	210	5	5	14,107	4	64	70	6,906	90	8,137	110	9,389	240	17,459
. .	17	2	1	20	1	. .	1,273	2									
1	75	. .	10	85	5	. .	2,400	5									
5	150	20	32	202	10	2	. .	3	. . .	. . .	21,600	. . .	24,570	. . .	21,385	. . .	20,750
4	200	22	52	274	13	3	. . .	3	. . .	. . .	36,000	. . .	34,000	. . .	36,800	. . .	35,000
. .	180	5	30	215	12	. .	. . . .	7	. . .	. . .	27,761	. . .	24,140	. . .	29 110	. .	28,400
. .	150	26	40	216	15	. .	. . . .	9	. . .	. .	23,460	. . .	22,950	. .	23,800	. . .	25,760
. .	18	2	8	28	2	. .	. . . .	3	48	85	4,080	100	4,800	60	2,880	110	5,280
. .	23	1	4	28	2	1	1,340	2									
2	30	. .	35	65	8	3	. . . .	2	56	445	. . . .	. . .	. . . .	253	14,168	320	17,920
3	20	. .	25	45	2	2	. . . .	2	42	475	. . . .	. .	. . . .	. . .	. . . .	475	19,950
2	30	. .	35	65	3	3	. . . .	2	42	148	6,216	. . .	. . .	167	7,014	302	12,684
3	125	12	37	174	13	6	8,239	7	45	200	9,000	190	8,500	205	9,225	195	8,775
. .	30	1	1	32	4	. .	1,646	2	42	. .	3,600						
1	46	3	14	63	7	. .	5,381	2	48								
. .	84	.	9	93	6	. .	7,234	1	49	110	5,390	90	4,410	80	3,920	100	4,900
								1	25	140	3,500	110	2,750	160	4,000	120	3,000
1	175	12	20	207	11	. .	6,995	3	40								
. .	60	8	12	80	6	. .	1,500	4	48	210	10,080	220	10,560	200	9,600	210	10,080
2	20	1	5	26	3	. .	751	3	137½	. . .	8,000	. . .	7,562	. . .	7,582		
. .	30	2	6	38	2	. .	1,280	6	48	. . .	7,000	. . .	9,240				
. .	69	. .	5	74	. .	. .	. . . .	4	. . .	. .	14,000						
. .	60	3	9	72	3	. .	2,600	2	42	300	12,600						
4	70	2	16	88	6	. .	7,500	3	42	183	7,686	. .	. . . .	. . .	. . . .	282	11,844
4	30	6	4	40	2	1	5,529	2	48	195	9,360	200	9,600	230	11,040	225	10,800
3	30	3	7	40	6	.	5,717	5	48	262	12,576						
. .	20	. .	3	23	. .	. .	4,040	3									
. .	28	2	3	31	2	. .	1,100	3	35	. . .	4,500	. . .	4,300	. . .	3,800	. . .	4,700
. .	75	. .	12	87	6	. .	. . . .	4	48	110	5,280	95	4,560	109	5,232	99	4,752
									35	185	6,660	220	7,920	160	5,760	263	9,468
2	110	6	8	124	7	1	. . . .	4	40	410	16,400	500	20,000	510	20,400	530	21,200
. .	. . .	.	. .	. . .	. .	. .	. . . .	2	41	360	14,760						
. .	15	1	2	18	1	. .	720	2									
. .	150	25	10	185	22	1	5,315										
. .	43	4	9	56	3	.	1,900	2	42								
. .	120	22	29	171	19	7	22,328	4									
. .	20	. .	3	23	2	. .	600	3	35	107	4,970	110	5,075	90	4,310	105	4,900

A STATEMENT *of the Names, Power, Capacity, and Ventilation in the respective*

NAME OF COLLIERY.	VENTILATION.									
			1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.	
	Average velocity of air current per month at inlet.	Average velocity of air current per minute per month.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current per minute at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face or heading.	Number of cubic feet per minute passing at or near face of head'g.
Kuob Colliery,			86	4,472	88	4,576	89	4,628	88	4,576
Enterprise Mine,										
Buckeye Mine,										
Osceola Mines,									80	3,200
Deer Park Mines,			200	11,200	210	11,760	210	11,760	210	11,760
			190	10,640	200	11,200	200	11,200	200	11,200
Pittsburgh and Connellsville Gas Coal & Coke Co.,			60	6,285	70	6,906	95	8,458	225	16,523
Weinman,										
Youghiogheny Mines,										
Shaft No. 1,			455	21,215	505	24,235	435	21,385	410	20,700
Shaft No. 2,			398	20,075	400	20,800	380	19,050	405	20,800
			350	15,005	380	15,920	375	15,800	335	15,920
No. 4 Mines,			535	27,100	538	24,200	610	28,720	605	28,020
Coal Run,			510	23,090	495	22,275	490	23,720	510	25,075
Amieville,			95	3,800	110	4,400	80	3,200	135	5,400
Mill Bank,										
Valley Works,										
Ferguson Mines,										
Anchor Mine,							66	3,958	90	6,711
M. Graver's,										
Nimick,										
Latrobe Mines,										
Saltsburg Mines,			45	4,275	45	4,275	70	6,650	50	4,720
			165	21,750	120	15,840	185	24,480	150	19,800
Hampton Mines,			230	9,200						
Leechburg Colliery,	210		200	9,600	210	10,080	150	8,640	200	9,600
Conrad Shaft,				3,860						
William Hodgson,								8,000		
Nixon Mines,				9,500		10,000		7,500		
Isabella Coke Works,										
Hill Farm,			95	5,220	80	4,480	105	5,880	90	5,040
Lemont Furnace,										
Rising Sun Works,										
Black Diamond,				3,700		3,900		3,300		3,800
Oak Ridge Mines,	103¾		146	5,840	109	4,360	64	2,560	86	3,440
	169¾									
Camp Hill,			200	9,000	220	9,200				
Coal Bluff,										
Glendale Mine,										
Enterprise,										
Brier Hill,										
Sterling Works,										
Black Diamond,			120	5,425	110	5,075	100	4,760	95	4,585

Collieries in the First Bituminous Mine District of Pennsylvania—Continued.

Ventilation.											
		1st week.		2d week.		3d week.		4th week.			
Average velocity per minute for the month.	Outlet—size of—feet.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Average number of feet passing out per month.	How Ventilated.
4,563	30	201	6,030	205	6,150	207	6,210	203	6,090	. . . .	Steam exhaust.
. . . .	. . .	. . .	. . . .	. . .	. .	. . .	. . .	. . .	. . . .	. . . .	Natural ventilation.
. . . .	36	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	do.
. . . .	. . .	. .	. . . .	. . .	. . . .	. .	. . . .	100	8,100	. . . .	do.
. . . .	56	500	28,000	600	33,600	610	34,160	630	35,280	. . . .	Steam exhaust.
. . .	64	60	6,285	70	6,906	95	8,458	225	16,528	. . .	do.
. . . .	. . .	. . .	. . . .	. .	. . . .	. . .	. . . .	. . .	. . . .	. . .	Furnace.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. .	. . . .	. . . .	Natural ventilation.
. . . .	51	423	21,573	480	34,480	420	21,420	407	20,750	. . . .	Fan, 12 feet diameter.
. . . .	40	900	36,000	850	34,000	920	36,800	875	35,000	. . .	do.
. . . .	71	390	27,761	340	24,140	410	29,110	400	28 400	. . . .	Furnace.
. . . .	34	690	23,460	675	22,950	700	23,800	740	25,160	. . .	do.
. . . .	28	160	4,480	170	4,760	110	3,080	200	5,600	. . . .	Natural ventilation.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. .	. .	. .	Furnace.
. . . .	108	107	11,565	. . .	. . . .	204	22,032	229	24,732	. . . .	do.
. . . .	49	. .	. .	. .	. . . .	. . .	. . . .	400	19,600	. . .	Steam exhaust.
. . . .	45	113	5,085	. .	. .	150	6,750	176	7,920	. . . .	do.
. . . .	45	190	8,859	180	8,100	190	8,550	170	7,650	8,200	Natural ventilation.
. . . .	42	. .	. . . .	. . .	. .	. .	. . . .	. .	. .	. . . .	Furnace.
. . . .	36	. . .	. . . .	. . .	. . .	. . .	. . . .	. . .	. . .	. . . .	Natural ventilation.
. . . .	49	245	12,005	220	10,780	230	11,270	225	11,025	. . . .	Furnace.
. . . .	40	380	15,200	. .	. .	. . .	. .	. . .	. .	. . . .	Furnace, 45 feet by 8 feet.
. . . .	60	200	12,000	210	12,600	200	12,000	190	11,400	. . .	Furnace.
. . . .	137	. . .	4,562	. . .	3,860	. .	. . . .	. .	. . . .	. . . .	Steam exhaust.
. . . .	42	160	6,720	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	Furnace.
. . . .	34	239	8,142	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	do.
. . . .	36	400	14,400	. .	. . .	. . .	. . . .	. .	. . . .	. . .	do.
. . . .	42	129	5,418	. .	. .	. . .	. .	176	7,329	. .	Steam exhaust.
. . . .	56	190	10,640	225	12,600	235	13,160	210	11,760	. . . .	Furnace.
. . . .	48	. . .	17,850	. . .	. .	.	. . . .	. . .	. . . .	. . . .	Steam exhaust.
. . . .	. . .	. . .	. .	. . .	. . .	. . .	. .	. .	. . . .	. . . .	Natural ventilation.
3,675	35	. . .	3,600	.	3,900	. . .	3,100		3,900	. . . .	do.
. . . .	40	353	14,120	365	14,600	303	12,120	402	16,080	. . . .	Furnace.
. . . .	42	600	25,200	610	25,600	600	25,200	490	20,589	. . . .	do.
. . . .	38	400	15,200	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	do.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. .	. . . .	. . .	. . . .	. . . .	Natural ventilation.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	do.
. . . .	25	. . .	. . . .	. .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	Furnace.
. . . .	. . .	. . .	. . . .	. .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	Natural ventilation.
. . . .	40	100	4 000	90	3,600	75	3,000	95	3,800	. . . .	Furnace.

A STATEMENT *of the Names, Power, Capacity, and Ventilation of the* *vania, for the Month*

NAME OF COLLIERY.	NAME OF OPERATOR.	Character of coal—bituminous or semi-bituminous.	Slope, shaft, or drift.	Pumps—how many.	Number of engines.	Horse power.
Latrobe mine,	M. Saxman, Jr. & Co.,	Bituminous,	Drift,		1	
Glendale mine,	S. B. Gregg,	do.	do.			
Rostraver,	J. W. Clark,	do.	do.			
Rising Sun,	Markle & Co.,	do.	do.			
Northside,	Westmoreland Coal Company,	do.	do.			
Spring Hill,	do. do.	do.	do.			
Southside,	do. do.	do.	do.			
Y. C. W.,	James O'Neil,	do.	do.			
Hill Farm,	Dunbar Furnace Company,	do.	do.		2	40
Sterling Works,	J. M. Schoonmaker,	do.	do.			
Streets Run,	J. D. Risher,	do.	do.			
Deer Park,	Mahoning Coke Company,	do.	Slope,	2	2	36
Cornell & Werling,	William H. Brown's heirs,	do.	Drift,	2	5	
Nixon Mine,	Chartiers Valley Coal Company,	do.	do.			
Knob Colliery,	Knob Coal Company,	do.	Slope,	1	1	30
Saltsburg Mines,	Saltsburg Coal Company,	do.	Dritt,			
Amity, No. 1,	J. C. Risher & Co.,	do.	do.			
Amity, No. 2,	do.	do.	do.			
Oak Ridge,	Oak Ridge Coal Company,	do.	do.			
Duquesne Mine,	N. Y. and Cleveland Gas Coal Co.	do.	do.			
Plum Creek,	do. do.	do.	do.			
Oak Hill, No. 3,	do. do.	do.	do.			
Oak Hill, No. 4,	do. do.	do.	do.			
Fort Pitt,	Fort Pitt Coal Company,	do.	do.			
Allequippa,	Whigham, Bailey & Co.,	do.	do.			
Millwood Shaft,	Millwood Coal Company,	do.	Shaft,	1	1	
Black Diamond,	Lindsey & McCausland,	do.	Drift,			
Umpire,	J. S. Cunningham & Co.,	do.	do.			
Lane Colliery,	Sandy Run Coal Company,	do.	do.			
Leechburg Colliery,	David B. Ashbaugh,	do.	do.			
Sandy Creek,	N. Y. and Cleveland Gas Coal Co.	do.	do.			
Union Coal Works,	M. Graver & Co., Limited,	do.	do.			
Pittsburgh and Connellsville Gas Coal & Coke Co		do.	Sl. and Sh.		3	
National Mines,	National Coal Co., Limited,	do.	Drift,	1		
Isabella Coke Works,	Isabella Furnace Company,	do.	Slope,	1	1	
Enterprise Works,	V. Harding,	do.	Shaft,	1	1	30
Carondolet,	Frazer & Frye,	do.	Drift,			
Ocean Mine,	W. L. Scott & Co.,	do.	do.			
Buckeye Mine,	John M. Cochran,	do.	do.	2		
Weinmans,	Jacob Weinman,	do.	do.			
Waverly Mines,	Waverly Coal Company,	do.	do.			
Lemont Mines,	Hogsett, Hanna & Co.,	do.	Slope,	1	1	30
Green Springs,	Thomas Fawcett,	do.	Drift,	1	1	35
Eldorado,	Zuck & Henry,	do.	do.	1		
Mansfield Coal & Coke Co.		do.	do.	1	1	12
Banner Works,	Gamble & Risher,	do.	do.			
Keystone Mines, No. 1,	W. H. Brown's heirs,	do.	do.			
Keystone Mines, No. 2,	do.	do.	do.			
Coal Run,	Penn Gas Coal Company,	do.	do.			
Shaft No. 2,	do. do.	do.	Shaft,	1	2	
Shaft No. 1,	do. do.	do.	do.	1	2	
Mines No. 4,	do. do.	do.	Drift,			

respective Collieries in the First Bituminous Mine District of Pennsyl-of December, 1879.

Boilers—how many.	Number of miners—men.	Number of miners—boys.	Other persons.	Total number of persons.	Number of mules inside.	Number of mules outside.	Total production in tons.	VENTILATION.							
										1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.	
								Number of openings.	Inlet—size of—feet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.
1	46	2	8	56	6	. .	4,200	2									
. .	30	3	3	36	1	.	1,420	2									
. .	56	3	5	64	4	. .	2,296	3	33	150	4,950	214	7,062	210	6,930	200	6,600
. .	20	. .	3	23	2	1	4,200	3									
. .	102	. .	. .	102		. .	10,278	5									
. .	46	. .	. .	46	. .	. .	4,498										
. .	195	. .	. . .	195		. .	18,318										
.	100	. .	22	122	9	.	6,800	5									
4	31	6	5	42	3	1	6,032	2	48	195	9,360	210	10,080	225	10,800	230	11,040
. .	118	25	27	170	20	7	22,165	10									
. .	113	14	11	138	5	4	6,652	3	40	418	14,630	434	15,505	428	14,980	357	10,710
5	31	.	4	35	4	2	. . .	2	64	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	13,760
4	170	12	35	217	8	1	12,924	4	48								
. .	50	4	6	60	3	. .	. . . .	2	42								
2	34	11	9	54	4	. .	2,777	2	60	102	6,120	101	6,060	103	6,180	100	6,000
. .	80	. .	9	89	6	. .	6,545	3	49	55	2,695	90	4,410	80	3,920	60	2,940
									45	125	5,625	100	4,500	180	8,100	160	7,200
. .	100	15	16	131	9	3	9,649	2	56	. . .	4,550	. . .	5,250	. . .	6,300	. . .	7,350
. .	. . .	. .	. . .	. .	. .	. .	. . . .	. .	. . .	. . .	3,280	. . .	4,540	. . .	8,112	. . .	8,050
. .	75	. .	13	88	6	. .	. . . .	3	48	110	5,280	97	4,656	47	2,256	110	5,280
									36	270	8,720	142	5,112	238	8,568	240	8,640
. .	106	21	8	135	6	. .	3,324	4	35	. . .	. . . .	. . .	. . . .	. . .	. . . .	137	4,795
									40							214	8,560
. .	138	30	36	204	20	. .	7,935	15	56	200	11,250	185	10,406	185	10,406	300	16,875
. .	50	10	12	72	3	1	2,930	3	. . .	346	14,532	335	14,070	314	12,810	348	14,616
. .	170	19	10	199	8	1	8,406	4	. . .	1,240	46,296	1,288	48,009	1,340	49,130	1,128	41,637
. .	40	4	6	50	5	2		3	40	200	8,000	250	10,000				
. .	85	.	4	89	8	. .	6,112	7	48								
6	60	6	7	73	7	. .	. . . .	2	50	300	15,000						
. .	18	1	3	22	. .	. .	. .	2	35	75	. . . .	80	. . . .	80	. . . .	65	
. .	71	6	12	89	6	2	4,000	4	63	160	. . . .	180	. . . .	210	. . . .	191	
. .	35	. .	5	40	5	. .	1,400	2	48	100	4,800	100	4,800				
. .	70	10	15	95	7	. .	6,500	3	48	230	11,040	220	10,560	200	9,600	210	10,080
. .	144	41	62	247	24	5	7,311	24	43	310	14,880	395	18,960	310	14,880	325	15,600
3	120	13	30	163	13	6	9,016	5	45	200	9,000	205	9,250	190	8,500	195	8,775
. .	. . .	. .	. .	. . .	. .	. .	15,236	. .	64	75	7,216	160	12,493	190	13,715	140	11,251
1	30	4	7	41	4	3	. . . .	2	38	283	11,754	253	9,614	268	10,184	273	10,374
									40	129	5,160	109	4,360	109	4,360	119	4,700
4	73	5	17	95	8	. .	8,725	3	42	233	9,780	120	5,0 0	. . .	. . .	232	9,644
1	35	.	3	38	2	. .	1,800	2	20	600	12,000	500	10,000	500	10,000		
. .	50	1	9	60	4	1	3,254										
. .	120	10	20	150	8	. .	10,500	3	48	. . .	. . . .	. . .	. . . .	. . .	. . . .	203	9,744
2	30	. .	39	69	4	2	4,200	3									
. .	15	3	1	19	1	. .	632	2	36	100	3,600	110	3,966	90	3,240	110	3,966
. .	100	3	9	112	12	. .	. . . .	3	. . .	. . .	. .	. . .	. .	. . .	. . . .	384	18,433
2	39	2	8	49	5	1	6,407	3	42	170	7,260	175	7,476	170	7,266	160	6,888
2	119	8	24	151	10	. .	. .	8	56	320	17,980	275	15,420	216	12,640	266	14,940
1	21	. .	5	26	4	1	3,025	3	12	. . .	. . . .	. . .	. . . .	. .	. . . .	200	2,400
1	160	5	30	195	9	2	7,700	. .	48	210	10,080						
. .	65	7	. .	72	3	. .	4,000	4	48	105	5,040						
. .	125	28	35	188	9	. .	9,108	27	49								
. .	80	12	25	117	10	. .	4,850	5	50	200	10,000						
. .	140	26	40	206	13	2	. . . .	9	. .	. . .	23,120	. . .	23,800	. . .	25,600	. . .	24,140
4	200	22	55	277	13	3	. . . .	3	. . .	. . .	36,000	. . .	36,000	. . .	35,000	. . .	38,000
4	150	20	52	222	12	1	. . . .	3	. . .	. . .	20,540	. . .	21,320	. . .	20,228	. . .	23,400
. .	180	5	30	215	14	. .	. . . .	7	. . .	. . .	28,440	. . .	23,760	. . .	26,280	. . .	25,900

A STATEMENT *of the Names, Power, Capacity, and Ventilation in the respective*

NAME OF COLLIERY.	VENTILATION.									
			1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.	
	Average velocity of air current per month at inlet.	Average velocity of air current per minute per month.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current per minute at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.
Latrobe Mine,										
Glendale Mine,										
Rostraver,			120	4,490	170	6,187	167	6,262	156	5,850
Rising Sun,										
Northside,						19,600		17,750		
Spring Hill,				8,000		7,650				
Southside,				10,290		11,010		13,020		
Y. C. W.										
Hill Farm,			105	5,145	140	6,860	125	6,125	110	5,390
Sterling Works,										
Street's Run,										
Deer Park,										5,120
Cornell & Werling,										
Nixon Mine,										
Knob Colliery,			83	4,576	87	4,524	89	4,628	86	4,472
Saltsburg Mines,			100	7,100	100	7,100	180	12,780	150	10,650
			120	16,920	190	26,700	200	28,200	180	25,380
Amity, No. 1,										
Amity, No. 2,										
Oak Ridge,			140	5,600	165	6,600	135	5,400	156	6,240
Duquesne Mine,									263	5,260
									214	8,998
Plum Creek,			119	5,6.6	110	5,280	103	4,944	110	5,280
Oak Hill, No. 3,										
Oak Hill, No. 4,										
Fort Pitt,										
Allequippa,										
Millwood Shaft,										
Black Diamond,			95		100		95		75	
Umpire,			113		116		130		135	
Lane Colliery,			260	4,160	260	4,160				
Lechburg Colliery,			550	9,6'0						
Sandy Creek,			120	5,760	170	8,160	140	6,720	150	7,200
Union Coal Works,										
Pittsburgh and Connellsville Gas Coal & Coke Co.,	141¼		65	6,019	140	11,251	175	13,424	120	10,010
National Mines,			204	8,160	191	7,640	201	8,040	196	7,840
			191	7,640	181	7,240	176	7,040	186	7,440
Isabella Coke Works,										
Enterprise Works,										
Carondolet,										
Ocean Mine,										
Buckeye Mine,										
Weinman's,			80	2,800	90	3,150	70	2,450	90	3,150
Waverly Mines,									190	18,240
Lemont Mines,			75	2,610	70	2,490	65	2,370	75	2,610
Greeen Springs,										
Eldorado,										
Mansfield Coal & Coke Co.,			180	7,900						
Banner Works,										
Keystone Mines, No. 1,										
Keystone Mines, No. 2,										
Coal Run,			480	22,850	420	23,775	450	25,000		24,200
Shaft, No. 2,			375	16,150	370	17,000	400	16,800	390	15,950
			340	18,275	385	17,320	350	17,100	355	18,050
Shaft, No. 1,			410	20,270	405	21,400	435	20,150	430	23,000
Mines, No. 4,			640	26,375	510	23,700	495	25,100	500	24,835

Collieries in the First Bituminous Mine District of Pennsylvania—Continued.

VENTILATION.												
		1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.			
Average velocity per minute for the month.	Outlet—size of—feet.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Average number of feet passing out per month.	How Ventilated.
. . .	. . .	. .	. . . .	. . .	. . . .	. .	. . . .	. . .	. . . .	. . . .	Natural ventilation.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	do.
. . . .	41	124	4,900	170	7,012	168	6,930	157	6,401	. . . .	Furnace ventilation.
. . . .	33	. . .	. . . .	. . .	. .	. .	. . . .	100	3,600	. . . .	Natural ventilation.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	do.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. .	. . . .	. . . .	Furnace ventilation.
. . . .	. . .	. .	19,635	. . .	23,500	. . .	27,030	. . .	26,520	. . . .	do.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	Natural ventilation.
. . . .	56	185	10,360	200	11,200	210	11,760	245	13,720	. . . .	Furnace ventilation.
. . . .	.	. .	. . . .	. .	. . . .	. .	. . . .	. .	. . . .	. . . .	Natural ventilation.
. . . .	42	556	23,352	612	25,704	520	21,840	612	25,704	. . . .	Furnace ventilation.
. . . .	56	. .	. . . .	.	. . . .	. . .	. . . .	200	11,200	. . . .	Steam exhaust.
. . . .	42¼	. . .	. . . .	. . .	. . . .	. . .	. . . .	. .	. . .	. . . .	Furnace ventilation.
. . . .	40	. .	. . . .	.	. .	. .	. .	. . .	. . .	. . . .	do.
. . .	30	205	6,150	203	6,090	207	6,220	203	6,090	. . . .	Steam exhaust.
. . . .	49	245	12,005	230	11,270	260	12,740	250	12,250	. . . .	Furnace ventilation.
. . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . .	. .	. . . .	. . . .	do.
. . . .	. . .	. .	. .	. . .	.	. .	. .	. .	. .	. . .	do.
. . . .	40	330	15,200	334	13,360	357	14,280	452	18,080	. . . .	do.
. . . .	20	. . .	. . . .	. . .	. . .	.	. . .	263	5,260	. . . .	Fire basket.
	42							2 4	8,998		
. . . .	56	190	10,687	200	11,250	195	10,968	200	11,250	. . . .	Natural ventilation.
. . . .	.	303	13,625	322	14,490	1·7	8,415	326	14,670	. . .	Furnace ventilation.
. . . .	. . .	478	19,279	490	19,834	521	21,091	424	17,135	. . . .	do.
. . . .	30	260	7,800	.	. . . .	. . .	. . . .	300	9,000	. . . .	Natural ventilation.
. . . .	. . .	. .	. . .	. .	. . . .	. . .	. . .	. .	. . . .	. . . .	Furnace ventilation.
. . . .	. . .	350	10,000	. .	. . .	.	. . . .	. . .	. . . .	. . . .	Fan ventilation.
. . . .	40	70	. . . .	75	. . . .	80	. . . .	70	. . . .	. . . .	Furnace ventilation.
. . .	56	212	. .	218	. . . .	300	. . .	290	. . . .	. . . .	do.
. . . .	16	500	8,000		.	500	8,000		. . . .	. . . .	do.
. . . .	60	300	18,000	300	18,000	250	15,000	300	18,000	. . .	do.
. . . .	48	110	5,280	120	5,760	100	4,800	140	6,720	. . .	do.
. . . .	45	185	8,325	190	8,550	175	8,775	205	9,275	. . . .	Natural ventilation.
125	64	65	6,019	140	11,251	175	13,424	120	10,010	125	Steam exhaust.
. . . .	30	437	13,110	402	12,060	412	12,360	427	12,810	. . . .	do.
. . . .	42	109	4,578	. . .	. . . .	. . .	. . . .	225	9,450	. . .	do.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	do.
. . . .	. . .	. .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	Furnace ventilation.
. . . .	48	. . .	. . . .	.	. . . .	. . .	. . . .	215	10,320	. . . .	do.
. . . .	36	. . .	. . . .	. .	. . . .	. . .	. . . .	. .	. . . .	. . .	Natural ventilation.
. . . .	16	210	3,360	220	3,520	180	2,280	220	3,520	. . . .	do.
. . . .	.	. .	. . . .	. .	. . . .	. . .	. . .	280	18,433	. . . .	Furnace ventilation.
. . . .	48	370	17,760	365	17,520	350	17,200	380	18,240	. . . .	Steam exhaust.
. . . .	56	274	15,112	310	17,020	275	12,5.2	407	22,875	. . . .	Natural ventilation.
. . . .	49	. . .	. . . .	. . .	. . . .	. . .	. . . .	45	3,087	. . . .	do.
. . . .	48	220	10,560	. . .	. . . .	. . .	. . . .	. .	. . . .	. . . .	Furnace ventilation.
. . . .	35	150	5,250	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	do.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	Natural ventilation.
. . . .	. . .	. .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	do.
. . . .	34	680	23,120	700	23,800	750	25,500	710	24,140	. . . .	Furnace ventilation.
. . . .	40	900	36,000	900	36,000	875	35,000	950	38,000	. . . .	Fan ventilation.
. . . .	52	395	20,540	410	21,320	390	20,280	450	23,400	. . . .	do.
. . . .	72	395	28,440	330	24,760	365	26,280	360	25,900	. . . .	Furnace ventilation.

LIST OF ACCIDENTS *occurring in the Mines of the First Bituminous Coal District of Pennsylvania, with a synopsis of the investigations or inquisitions held, together with the remarks upon the condition of the several collieries, &c., in said district, for the year ending December 31, 1879.*

NAME.	Age.	Married or single.	Number of orphans.	Date of accident.	Nature of Accident.	Date of investigation.	REMARKS.
John Blake,	23	Married,			Hurt by wagons,		At Larimer, No. 1, Westmoreland Coal Company.
William Barneff,	30	do.			Hurt by falling coal,		At Larimer, No. 1, Westmoreland Coal Company.
V. Harbarger,	30	Married,		Jan. 27	Leg broken by rail falling off wagon,		At Mount Braddock mines, operated by Colvin & Torrenee.
Frank Donally,				Feb. —	Hurt slightly by wagons,		At Larimer's mine, Westmoreland Coal Company.
William McKee,				"	Hurt slightly by wagons,		At Southside mines, Westmoreland Coal Company.
Joseph Spook,				"	Hurt slightly by wagons,		do. do.
William Miller,				"	Hurt slightly by wagons,		do. do.
B. Mansh,	21	Single,		" 7	Rib broken by wagons,		At Mount Braddock mines, operated by Colvin & Torrenee.
Edward McElroy,	22	do.		" 5	Hurt by a fall of coke ovens,		do. do. do.
Joseph Shorley, *a*	45	Married,		" 10	Killed by fall of coal,		At William Neel's mine, McKeesport.
Andrew J. Crouch, *b*	21	do.		" 14	Killed by fall of slate and coal roof,		At the William Hodgson mine, operated by Jones & Watkins.
Robert Simcox,	18	Single,		March 1	Both thigh bones crushed,		At Wettengel & Gormley mine, Chartiers township, Allegheny county.
George Heath,	24	Married,		" 7	Killed by falling slate,	March 8	At Youghlogheny mines, operated by James O'Neil, situated at Boston, Allegheny county. Inquest held by coroner. Verdict, accidental.
John Tate,	23	Single,		" 15	Killed by falling slate,	" 17	At Bower Hill mine, operated by A. J. Sehultze, situated near Bridgeville, Allegheny county. Investigation held March 17. Verdict, accidental death was returned.
Thomas Murray,	32	Married,		" 5	Leg, arm, and collar-bone broken by fall of coal,		At the Greensburg mines, operated by the Greensburg Coal Company, Westmoreland county.
Benjamin Riggs,	22	Single,		" 26	Hurt by fall of coal and slate,		At Horner & Roberts' mine, Elizabeth, Allegheny county.
Louis Gehir,	35	Married,			Foot bruised by fall of slate,		At Ocean mines, operated by W. L. Scott & Co., Westmoreland county.
John Stein,				March 27	Crushed by fall of slate,		At the Birmingham Coal Company mine, situated in Allegheny county.
William Logan,	40	Married,			Foot hurt by fall of slate,		At Cornell & Werling mine, operated by Wm. H. Brown's heirs, Boston, Allegheny county.
John Pryor,	27	Single,		April 9	Killed by fall of slate,	April 15	At Smith's mine, operated by Moore & Smith, located in Washington county. He had finished his room and was removing the timber when the slate fell, killing him instantly. The jury returned a verdict of accidental death from fall of slate.
George Cowen,	30	do.		" 15	Leg broken by fall of slate,		At Craig Brothers' mine, Washington county.
Thomas Jackson,	36	Married,		" 2	Burned by explosive gas,		At the Miiesville mine, operated by Robbins, Lynn & Co., Allegheny county.
Jacob Qualk,	20	Single,		" 1	Hurt by coal wagons,		At J. S. Nell mine, located at Greenfield, Washington county.

William Dodds,	20	Single,		April 22	Injured fatally; died the next day,		At the Keystone mines, operated by William H. Brown heirs. He was a driver and got caught between the wagons and pillar.
John Aiken,	57	Married,		" 18	Hurt about the head and body by fall of slate,		At Gray & Bell's, Union township, Allegheny county.
Newlon Schoky,	21	Single,		" 25	Hurt by falling slate,		At Gregg's mine, operated by Crowthers, Musgrave & Co., Washington county.
George Beauregard,	30	Married,	4	" 8	Was found dead in his room,		At Cornell & Werling mine, operated by Wm. H. Brown heirs. Boston, Allegheny county. Supposed to have died from apoplexy.
David Patterson,	20	Single,		" 16	Bruised slightly,		At Enterprise mine, operated by O'Neil & Co., situated in West Elizabeth, Allegheny county.
Thomas Phillps,	40	do.		" 21	Hurt about the hips and thigh by falling slate,		At Cedar Hill mine, operated by Morgan & Dixon, situated in Fayette county.
Jacob O'Byrne,		Married,		" 15	Foot hurt by wagons,		At Southside mine, Westmoreland Coal Company, Westmoreland county.
Peter Heasler,		do.		" 10	Hurt by fall of slate,		At Southside mine, Westmoreland Coal Company, Westmoreland county.
John Egare,		do.		" 15	Hurt by fall of slate,		At Southside mine, Westmoreland Coal Company, Westmoreland county.
Jesse Miller,	29	do.		" 29	Leg bruised slightly,		At Cumberland and Elk Lick Coal Company, Somerset county.
John Twala,	16	Single,		" 28	Leg broken,		At Cornell & Werling mine, operated by W. H. Brown's heirs, at Boston, Allegheny county.
James Miller,	50	Married,			Shoulder hurt by fall of slate,		At Cornell & Werling mine, operated by W. H. Brown's heirs, Boston, Allegheny county.
William H. Harrison,	30	do.			Fell off cars, hand cut,		At Cornell & Werling mine, operated by W. H. Brown's heirs, Boston, Allegheny county.
William Hart,		Single,		May 2	Back hurt by fall of slate,		At the Youghiogheny mines, operated by James O'Neil, Boston, Allegheny county.
M. Thomas,		Married,			Hurt by coal in the eye,		At the Youghiogheny mines, operated by James O'Neil, Boston, Allegheny county.
Henry Hanna, *c*	50	do.	7	May 5	Killed by falling slate,	May 6	At Shaft No. 1, Penn Gas Coal Company, situated at Irwin Station, Westmoreland county.
George Squib, *d*	17	Single,		" 12	Killed by falling slate,	" 15	At Millwood Coal and Coke Company's mines, Millwood, Westmoreland county.
David Rees,		Married,		June 4,	Hurt in the back by fall of slate,		At Coal Bluff mine, operated by Patterson & Co., located in Washington county.
John West, *e*	38	Widower	1	" 4,	Killed by falling slate,	June 4,	At the Grant mines, operated by Jones, Wilson & Co., located at Mansfield, Allegheny county.
Thomas Edwards, *f*	13	Single,		" 5,	Killed by wagons,	" 12,	At the Southside mine, operated by the Westmoreland Coal Company, situated at Irwin, Westmoreland county.
John Lott, *g*	54	Married,	6	" 10,	Killed by falling slate,	" 11,	At the Plum Creek mines, operated by the New York and Cleveland Gas Coal Company, located in Plum township, Allegheny county.
Christopher Springbaugh				" 12,	Leg broken by fall of slate,		At Oak Hill mine, No. 4, operated by the New York and Cleveland Gas Coal Company, located in Patton township, Allegheny county.
James Hardwick, *h*	49	Widower	1	" 13,	Killed by falling slate,	" 13,	At the Mansfield Coal and Coke Company mine, No. 2, situated at Mansfield Valley, Allegheny county.
James Crusen,	35	Married,		" 28,	Foot crushed by falling slate,		At the Millwood shaft, operated by the Millwood Coal and Coke Company, located in Westmoreland county.

LIST OF ACCIDENTS *occurring in the Mines of the First Bituminous Coal District of Pennsylvania, with a synopsis of the investigations or inquisitions held, together with the remarks upon the condition of the several collieries, &c., in said district.—Continued.*

NAME.	Age.	Married or single.	Number of orphans.	Date of accident.	Nature of Accident.	Date of investigation.	REMARKS.
Peter Dodds,	23	Single,		" 3,	Coller bone and ribs broken,		At the Keystone mines, operated by W. H. Brown's heirs, located in Allegheny county.
Patrick Newell,	42	Married,		" 20,	Hurt slightly by falling slate,		At the Camp Hill mines, owned and operated by David Steen & Sons, located in Collier township, Allegheny co.
W. P. Williams,	15	Single,			Arm broken by wagons,		At the Hampton mines, operated by John McIntyre, located in Wilkins township, Allegheny county.
George Biggleman,	35	Married,			Leg broken by wagons,		At the Hampton mines, operated by John McIntyre, located in Wilkins township, Allegheny county.
James Craneer,				June 17,	Hurt by fall of slate,		At the Sandy Creek mines, owned and operated by the New York and Cleveland Gas Coal Company, in Allegheny co.
Thomas Herron,	16	Single,		July 1	Injured internally by wagons,		At the Grant mine, James Jones, operator, located in Allegheny county.
James Hawkins, *i*	36	Married,	6	" 17	Killed by falling slate,	July 21	At the Keystone mines, operated by W. H. Brown's heirs, situated in Allegheny county.
David Marshall, *j*	50	Single,		" 16	Injured fatally by fall of coal,		At Smith & Moore mine, situated in Washington county.
Robert Stark,		Married,			Burned by explosive gas,		At the Cliff mine, operated by Scully & Co., in Washington county.
Joseph Sherbody, *k*	44	do.	4	" 3	Injured fatally by fall of coal, and died on the 7th.		At the Leechburg colliery, David B. Ashbaugh, operator, Westmoreland county.
W. P. Swoop, *l*	21	Single,		" 24	Injured fatally by wagons, died on the 26th.		At Deer Park mine, operated by the Mahoning Coal and Coke Company, in Fayette county.
Frank Fitzpatriek, *m*	48	Married,	1	" 17	Injured fatally, by being burned by explosive gas. Died July 26.		At Ocean mine, operated by W. L. Scott & Co., in Westmoreland county.
James Fitzpatriek, *m*	14	Single,		" 17	Injured fatally, by being burned by explosive gas. Died July 18.		At Ocean mine, operated by W. L. Scott & Co., in Westmoreland county.
John Thomas, *m*	41	Married,		" 17	Burned by explosive gas,		At Ocean mine, operated by W. L. Scott & Co., in Westmoreland county.
George Uller,	55	do.		" 29	Leg broken by fall of slate,		At Allison's mine, situated in Washington county.
James Williams,	45	do.	4	" 14	Killed by fall of coal,		At the Lane colliery, Langdon & Morley, operator, located in Bedford county.
William Heath,		do.			Hurt slightly by fall of slate,		At Youghiogheny mines, operated by James O'Neil, Boston, Allegheny county.
Jonathan Lape,	60	do.		" 31	Leg broken by fall of slate,		At Osceola mines, operated by the Osceola Coal Company, in Westmoreland county.
John McKenna,	14	Single,		" 10	Leg broken by wagons,		At the Loyalhanna mines, operated by the Loyalhanna Coal and Coke Company, Westmoreland county.
Robert Hysong,	20	do.		" 28	Back hurt by wagons,		At the Loyalhanna mines, in Westmoreland county.
John Chusey,	22	do.		" 25	Hand hurt by fall of slate,		At Fort Pitt mines, situated in Allegheny county.
W. H. Harrison,	25	Married,		Aug. 30	Hurt slightly by fall of slate,		At Cornell & Werling mine, operated by W. H. Brown's heirs, situated in Allegheny county.

J. M. Bennett,	17	Single,		"	12	Hurt slightly by fall of coal,		At Streets Run mine, owned and operated by J. D. Risher, located in Allegheny county.
William Roberts,	30	Married,		"	20	Burned by explosive gas,		At Coal Bluff mine, operated by Patterson & Co., located in Washington county.
William McBroom,	36	do.		"	18	Hurt by falling slate,	Aug. 19	At Camp Hill mine, operated by David Steen & Sons, located in Allegheny county.
Ferdinand Fritze, *n*	34	do.	4	"	18	Back broken, died September 8,	" 19	At Camp Hill mine, operated by David Steen & Sons, located in Allegheny county.
John Peach,	40	do.				Hurt by fall of roof,		At Walton & Co., Beck's Run mine, situated in Allegheny county.
Evan Evans, *o*	35	do.	4			Killed by fall of roof,		At Beck's Run mine, operated by Joseph Walton & Co., located in Allegheny county.
Joseph H. Brown,	30	do.		"	12	Leg broken by wagons,		At Oak Hill mine, No. 4, operated by New York and Cleveland Gas Coal Company, in Allegheny county.
John Clements, *p*	45	do.	6	"	16	Killed instantly by wagon,	Aug. 18	At Walton & Co., Beck's Run mine, situated in Allegheny county.
Thomas D. Gibson, *q*	24	Single,		"	29	Killed by falling slate,	Sept. 8	At Allequippa mine, operated by Whigham, Bailey & Co., located in Allegheny county.
Moses Hatlin,	23	do.		"	15	Foot crushed,		At Southside mine, operated by the Westmoreland Coal Company, situated in Westmoreland county.
Thomas Butler,	62	Married,		"	11	Leg broken by fall of coal,		At Six Mile Ferry, No. 1, owned and operated by H. B. Hays & Bro., located in Allegheny county.
Henry Jukes,	43	do.		"	14	Ribs broken by fall of slate,		At H. B. Hays & Bro., Beck's Run mine, located in Allegheny county.
John Hays,	20	Single,		"	1	Thumb taken off,		At Boyle & Hazlett's slope, situated in Westmoreland county.
John Buskey,	25	Married,		"	19	Leg hurt by wagons,		At Boyle & Hazlett's slope, situated in Westmoreland county.
George Nutting,	26	do.		"	19	Eye knocked out,		At Boyle & Hazlett's slope, situated in Westmoreland county.
William Devlin,	15	Single,		"	25	Crushed by wagons,		At Boyle & Hazlett's slope, situated in Westmoreland county.
George Dean,						Hurt by fall of slate,		At Plum Creek mine, operated by New York and Cleveland Gas Coal Company, located in Allegheny county.
William Prentice,	40	Married,				Hurt slightly by fall of slate,		At Osceola mine, operated by the Osceola Coal Company, located in Allegheny county.
John Cross,	35	do.		"	6	Back hurt by fall of slate,		At Cumberland and Elk Lick Coal Company mine, situated in Somerset county.
Owen Dugan,	26	Single,		Sept.	25,	Hand bruised by wagons,		At Amleville mine, operated by N. J. Bigley, located in Westmoreland county.
James Peterson,	21	Single,		Sept.	8,	Leg broken, and back hurt, fall of slate.		At Millwood shaft, operated by the Millwood Coal and Coke Company, in Westmoreland county.
Benjamin Brown,						Foot hurt slightly by fall of roof,		At Brown & Cochran's mine, located in Fayette county.
Patrick McLaughlin, *r*	35	Single,		Sept.	9,	Killed by fall of slate,	Sept. 15,	At the American mines, operated by F. H. Corsin, situated in Washington county. Inquest held, verdict accidental death.
Samuel Williams, *s*	11	Single,		Sept.	1,	Killed by fall of roof,	Sept. 2,	At Spring Grove mine, operated by Cochran & Kesler, situated in Fayette county. Inquest held, verdict accidental.
John Lilliek, *t*	35	Single,		Sept.	9,	Killed by fall of coal,	Sept. 10,	At the Black Diamond mine, operated by Lindsay & McCausland, situated in Allegheny county.
Charles Robinson, *u*	50	Married,	9	Sept.	13,	Fatally injured, died on the 15th,	Sept. 20,	At shaft, No. 2, operated by the Penn Gas Coal Company, located in Westmoreland county.

LIST OF ACCIDENTS *occurring in the Mines of the First Bituminous Coal District of Pennsylvania, with a synopsis of the investigations or inquisitions held, together with the remarks upon the condition of the several collieries, &c., in said district.—Continued.*

NAME.	Age.	Married or single.	Number of orphans.	Date of accident.	Nature of accident.	Date of investigation.	REMARKS.
James Jones,	45	Married,		Sept. 27,	Foot bruised by fall of timber,		At the Grant mine, operated by himself, situated in Allegheny county.
A. Y. Schultze,	47	Married,		Sept. 15,	Burned slightly by explosive gas.		At the Bower Hill mine, operated by himself, situated in Allegheny county.
John McKay,	55	Married,		Sept. 23,	Hurt slightly.		At Jones & Watkins', situated in Westmoreland county.
George Smith,	40	Married,		Oct. 8	Leg broken by falling slate,	Oct. 9,	At Enterprise mine, operated by Hartley & Marshall, situated in Allegheny county.
James Brown, *v*	50	Single,		" 8	Killed by falling slate,		At Birmingham Coal Company's mine, Southside, Pittsburgh, Allegheny county.
William Oliver,	21	do.		" 11	Leg broken by falling slate,		At Summer Hill mine, operated by Frank Armstrong, located in Allegheny county.
Henry Smith,	70	Married,		" 25	Leg broken by falling slate,		At Prim Rose mine, operated by the Walnut Hill Coal Company, located in Washington county.
John Johnston,	25	Single,		" 20	Leg broken by falling slate,		At the Venture Pit, operated by Gray & Bell, situated in Allegheny county.
Henry Helman, *w*	23	do.		" 22	Leg broken by falling slate—died on 27th.	Oct. 29,	At Mount Braddock mine, operated by S. Colvin & Co., situated in Fayette county.
Charles Young,	40	Married,		" 30	Crushed between wagons,		At Osceola mine, operated by Osceola Coal Company, situated in Allegheny county.
William Huskins,	23	Single,		" 10	Hurt slightly by falling slate,		At the Nimick mine, operated by Thomas Fox, located in Allegheny county.
Peter Popp, *x*	38	Married,	4	Nov. 10	Back broken by fall of slate; died December 2,	Nov. 13,	At Jacob Weinman mine, located in Wilkinstownship, Allegheny county.
Byron Mattson,	19	Single,		" 24	Leg broken in two places by fall of slate		At Hampton mines, operated by John McIntyre, situated in Wilkins township, Allegheny county.
Adam Huff,	40	Married,		" 8	Back hurt by falling coal,		At Saltsburg mines, operated by the Saltsburg Coal Company, situated in Westmoreland county.
Samuel Johnston,	20	Single,		" 17	Leg broken by wagons,		At Saltsburg mines, operated by the Saltsburg Coal Company, situated in Westmoreland county.
Charles Warner,	23	"		" 4	Burned by explosive gas,		At Enterprise mine, operated by Hartley & Marshall, located in Allegheny county.
Henry Shrump,				" 13	Leg broken by fall of coal,		At the Globe mine, operated by Crowthers, Musgrave & Co., located in Washington county.
John Morgan, *y*	63	Married,	10	" 7	Hurt by falling slate, (died since,)		At O'Neil & Co. mine, situated in Allegheny county.
James Evens, *z*	23	Married,	1	Nov. 5	Killed by falling slate,	Nov. 6	At Pine Run mine, operated by James Lynn & Co., situated in Allegheny county.
Edward Moss,	30	do.		" 2	Hurt slightly by wagons,	" 2	At Pine Run mine, operated by James Lynn & Co., situated in Allegheny county.

Philip Ostien,		Single,		Dec. 12	Hurt by falling slate,	Dec. 12	At Union Coal Works, operated by M. Graver & Co., in Allegheny county.
W. Hart,	55	Married,			Hurt by slate,		At Youghiogheny mines, operated by James O'Neil, in Allegheny county.
Frank Snyder,	32	do.		Dec. 2	Leg broken by fall of slate,		At Coal Valley, operated by William Stone's heirs, situated in Allegheny county.
Thomas McGinnis,	40	do.		" 1	Leg broken by wagons,		At Willow Grove mine, operated by T. B. Robbins & Co., situated in Allegheny county.
George Williams, *aa*	14	Single,		" 20	Killed by wagon,		At Ferguson slope, operated by H. C. Frick & Co., located in Fayette county.
Thomas Jennings,	38	do.		" 19	Fatally injured by falling slate; died December 25,		At the Penny mine, operated by Lynch & Robinson, situated in Allegheny county.
James Jones, *bb*	51	Married,		" 30	Killed by falling slate,	Dec. 31	At Mansfield Coal and Coke Company, located at Mansfield, Allegheny county.
Good Goodrick,	22	Single,		" 27	Hurt by wagons,		At Sterling mines, operated by J. M. Schoonmaker, situated at Dawson Station, Fayette county.
J. D. Everley,	25	Married,		" 27	Hand hurt by pick,		At Sterling mines, operated by J. M. Schoonmaker, located in Fayette county.
Joseph Briggs, junior,		Single,		" 31	Hurt by fall of roof,		At Allequippa mine, operated by Whigham, Bailey & Co., situated in Allegheny county.
William Greenwood,				" 10	Leg broken by fall of timber,		At Norwood mines, operated by H. C. Frick & Co., situated in Westmoreland county.
Samuel Kistler, *cc*		Married,	4	" 29	Killed by explosive gas,		At Coal Run mine, operated by the Penn Gas Coal Company, located at Irwin, Westmoreland county.
Michael Kessler, *cc*		do.		" 29	do. do.		At Coal Run mine, operated by the Penn Gas Coal Company, located at Irwin, Westmoreland county.
Cyrus Frye,		do.		" 29	do. do.		At Coal Run mine, operated by the Penn Gas Coal Company, located at Irwin, Westmoreland county.

a Joseph Sherley was working in his room mining coal; was laying down on his side, bearing in, when the coal fell on him. He lived but a few hours. I was not notified at the time, but discovered it afterwards. No inquest was held.

b Andrew J. Crouch was working with four other men, repairing the main-heading, at the William Hodgson Mine, when a fall of roof occurred, killing him instantly.

c Henry Hanna, who was killed by falling slate at Shaft No. 1, Penn Gas Coal Company, was at work mining coal in his room. The driver had given him an empty wagon to fill, and on going into his place for the wagon, found him under the fall of state. He was dead when found. Inquest was held by the coroner, when a verdict of accidental death was rendered by the jury.

d George Squib worked with his older brother. They were removing a pillar of coal. There was a large piece of slate hanging, and his brother wanted him to stand a prop under it, but he refused to listen to his brother, and went on with his work. A few minutes after, the slate fell upon him, killing him instantly.

e John West, who was killed at the Grant mine, June 4, was driving a heading with James Mulholland. They were loading a wagon of coal at the time of the accident. I visited the mine the day before the accident, and called on these men. Noticing that they had a large quantity of slate up, insufficiently timbered, I cautioned them to be more careful, and stand plenty of timber. But they neglected to do so, and Mr. West paid the penalty with his life. Coroner's jury returned a verdict of accidental death.

f Thomas Edwards fatally injured at Southside, Westmoreland Coal Company mine, was a trapper boy. The mule drivers were going out to dinner. He jumped on the moving train of wagons. Soon after the driver heard his cries for help, ran back, and found him laying outside the track very much hurt by being run over by the wagons. He was removed to his home and medical assistance procured, but he died nine hours later.

g John Lott killed by falling slate, at the Plum Creek mine. Was working in a room with his son, aged eighteen. He was filling his wagon with coal, when a piece of slate fell from the side, and directly above him, striking him very hard on the head. He lived but five hours afterward. On my visit the next day to investigate this accident, the mining boss informed me that just about a minute before he was struck, a small boy who worked with his father had been to Mr. Lott to get the loan of a wedge. He noticed the slate being dangerous, and spoke to Lott about it, but he paid no attention to the boy, but went on with his work, with the above result. Inquest held by coroner. Verdict, accidental, by fall of slate.

h James Hardwick killed by falling slate, at the mines of Mansfield Coal and Coke Company. Had been engaged the day previous, and was turning a room. He also was in the act of loading a wagon with coal, when the slate fell, striking him very hard, and killing him instantly. Inquest by coroner was held, when the jury returned a verdict of accidental death from fall of slate.

i James Hawkins, killed by fall of roof at the Keystone mines. Was at work in a pillar. He is supposed to have been in the act of removing the timber that supported the roof, when it fell, killing him instantly. He was found by his brother. Assistance procured, and removed as soon as possible, but life was extinct.

j David Marshall, injured fatally at Smith & Moore's mine. Was hewing out a place to build a ventilating furnace. Had undermined a body of coal, when suddenly a fall occurred. His injuries were of such a nature, that he died four days later.

k Joseph Sherbody, injured fatally, was inbearing, when the coal fell upon him, crushing him internally. He died after four day's suffering.

l W. P. Swoop was rope-rider at Deer Park mine. Was at the bottom of the slope, and had given the engineer at the top a signal to start up the trip, when he slipped off the wagons, was caught between the pillar and the wagons, and seriously injured.

m The accident that resulted in the death of Frank and James Fitzpatrick, occurred in the following manner: The elder Fitzpatrick met John Thomas, the mining boss, and told him that one of the rooms had fell in. Thomas wishing to see the extent of the fall, went on top of it with a naked light, ignited some gas, and all three were burned.

n Ferdinand Fritze, fatally injured at Camp Hill mine. Was mining coal with William McBroom. They had neglected to stand a sufficient number of props to support the roof. McBroom was loading a wagon of coal, when a very large piece of slate fell from the roof. McBroom's injuries were not of a serious nature, but Fritze received injuries from which he died three weeks later.

o Evan Evans, injured fatally at Walton & Co.'s mine. Was assisting Morris Capp, the mining boss, to make some repairs inside the mine, and was ripping down some roof coal, when a large piece of slate fell, striking him very hard. He lived but a few hours after being hurt. He had sounded the top but a few minutes before, and thought it was safe.

p John Clements, instantly killed at Joseph Walton & Co.'s mine, was check-weighman, and at the time of the accident was attending to his duties at the foot of the incline plane, when the wire cable used to lower the pit wagons suddenly parted, and the loaded wagon came rushing down the incline plane at a terrible velocity, and struck Clements, instantly killing him.

q Thomas D. Gibson, killed at Allequippa mine, operated by Whigham, Bailey & Co., was at work with an elder brother, driving heading. His brother told him to remain at the face of the heading, and he would take down the slate. Gibson thinking it unsafe started out, and was caught by the falling slate.

r Patrick McLaughlin, killed by fall of slate at the American mines. Had just returned from the outside, where he had been to get his picks, and had just sat down to work, when the slate fell, striking him upon the head, killing him instantly.

s Samuel Williams, aged eleven years of age, who was killed at the Spring Grove mine, worked with his father, who had put him to work in a break-through, and had neglected to stand a sufficient number of props to support the roof. The coroner's jury returned a verdict of accidental death.

t John Lillick, killed at the Black Diamond mine, had made a large inbearing in the coal, where he encountered a clay vein, when the whole mass of coal and slate suddenly fell, instantly killing him.

u Charles Robinson, fatally injured at the Penn shaft, No. 2, was returning from work. At the foot of the shaft, a number of men were awaiting their turn to ascend the shaft, when a rush was made for the empty carriage by the men, when it would appear that Robinson received a blow from a pick-handle in the abdomen, from which he died two days later. The jury returned the following verdict: "That Charles Robinson came to his death, in consequence of injury caused by being struck in the abdomen, with the end of a pick-handle, in the hands of a person to the jury unknown. That said injury occurred at the bottom of shaft, No. 2, of the Penn Gas Coal Company. That the occasion of it was the pushing of a number of men to get first to the cage to be brought up out of the mine, and that the injury to said Charles Robinson, which caused his death, was purely and entirely accidental."

v James Brown, who was instantly killed, October the 8th, at the Birmingham Coal Company's mine, was removing a pillar, and is supposed to have been in the act of knocking down coal, when the slate fell upon him. He was dead when found.

w Henry Helman, fatally injured, at the Mount Braddock mine, October 22, was descending the slope with James Barber, at the same time a train of loaded wagons was being drawn out of the mine. Mr. Helman failed to get out of the way, and was caught by the front wagon, and, before the train could be stopped, was dragged about eighty yards. It was found he had received very serious injuries, one leg being broken. Medical attendance was procured, and his wants attended to, but, on the 27th it was found necessary to amputate the limb, which was done, and he died three hours later. Inquest was held on the 29th, by justice of the peace, Mr. Bute, when the following verdict was returned: "That Henry Helman came to his death, on the night of October 27, 1879, by improper treatment of his physician, namely, Dr. R. W. Clark, and that he was well and faithfully nursed, and the nurse strictly followed the directions of the same Dr. R. W. Clark."

x Peter Popp, who was injured at Jacob Welnman's mine, on November 10, and who died December 2, was at work in his room mining coal. He was sitting down bearing in, when a large mass of slate, which he had neglected to take down, fell upon him, very seriously injuring him.

y John Morgan hurt at O'Neil & Co. mine, was at work with a son, and was in the act of taking down slate, which fell upon him. He received injuries from which he died two weeks later.

z James Evens worked in a room, mining coal, at Pine Run mines, and was in the act of loading a wagon of coal when the slate fell, killing him instantly. A few minutes before a young man had helped him to push his wagon to the face of the room, and noticed the slate in a dangerous condition. Warned him against working under it. Evans, however, paid no attention to what was said by his friend, but commenced to load the wagon, with above results.

aa George Williams, age fourteen years, was employed to ride a mule at the Furguson mines, H. C. Frick & Co. When the mule started with the wagon he was standing upon the hind end of the wagon. He jumped off, ran in front of wagon, slipped, and fell directly under the wheels, and was instantly killed. This, upon investigation, appears to have been a pure accident. It occurred outside, the wagon being used to charge the coke ovens.

bb James Jones, who was fatally injured at the Mansfield Coal and Coke Company mines, worked with his son, age eighteen, in a room. They had fired a shot a short time before the accident, and were loading a wagon. Mr. Jones was standing under the slate, knocking down the coal, and his son filling it into the wagon, when the slate, a large mass, fell upon him, the son making a narrow escape. Mr. Jones was removed to his home, and medical assistance procured, but his injuries were of such a nature that he died in a few hours. He was a competent workman, and fully understood his business. Upon investigation, I found two slips in the roof and slate also, which had not been noticed by him, and which caused the sudden fall to take place.

cc Samuel Kistler and Michael Kessler, killed by explosive gas at the Coal Run mine, Penn Gas Coal Company. They were going into the mine to work. Kessler was walking about four hundred yards ahead of Kistler, when he met the gas and exploded it, when both were killed. Cyrus Frye, who was a short distance from Kistler, received serious injuries from the same cause.

SECOND DISTRICT.—J. J. Davis, Inspector.

To the Honorable A. K. Dunkel,

Secretary of Internal Affairs:

Sir: In closing my labors for the year 1879, I deem it my duty as inspector of mines for the second bituminous coal district of Pennsylvania, to send you a closing report. This district comprises the counties of Beaver, Lawrence, Mercer, Crawford, Erie, Warren, Forest, Venango, Clarion, Jefferson, Indiana, Armstrong, Butler, and that portion of Allegheny county lying north of the Ohio and Allegheny rivers.

In most of the counties, there are quite a number of mines that the provisions of the law only applies to at certain seasons of the year. This class of mines are the most difficult to keep track of, for, when there is any increase in the local demand for coal, there is also a corresponding increase in the number of persons employed, &c., and that, often, when the general condition of the mine is in a sad state to admit of any such change. In my experience of visiting mines of this class, I can say, that I would much rather visit half a dozen of well conducted extensive mines, than one of the above class. The make-shift policy is too often made use of, and owing to the small out-put of coal, those that own and run them, are not able to allow the means necessary for the required improvements.

In several of the larger mines in the district, there have been marked improvements made in ventilation, drainage, and in the general conditions of the workings. During the year, several air-shafts have been sunk, furnaces built, and in some instances fans erected. Many of the mines in the district would be benefited by substituting fans instead of furnaces, especially those operated by shafts and slopes, and where they are compelled to use steam power in order to carry on their workings. The fan would be to them less expensive and the most effective. I have the promise of some of the operators to make a trial of the fan at some of the mines, and I have no doubt that when the trial is made, that it will be the means of inducing the general adoption at most mines of this class.

The number of accidents reported during the year, both inside and outside of the mines, is twenty-one. Only one of which, I am happy to say, proved fatal.

This is due to a certain extent, to the safe character of the roof in most of the mines, and to the careful management of machinery. As far as I have been able to learn in my inquiries while visiting at mines where machinery is used, there are none but sober, competent, and experienced enengineers employed.

Accompanying the report, you will find in tabulated form, the names of

the persons injured, the date of accident, nature and cause of accident, and the name and location of the colliery where the accident happened.

Also a drawing and description of the improved tipple, and coal chutes erected and used at the mines of Powers, Brown & Co., Reynoldsville, Jefferson county, and plan of furnace erected at Hite mine No. 2, Allegheny county. And in the description of mines, I have given more attention to the improvements made during the past year than to other matters.

All of which I respectfully submit.

Yours &c.,

J. J. DAVIS,
Inspector of Mines.

BRADY'S BEND, *Armstrong county, Pa.*

For the purpose of obtaining the necessary information to give a full report of the production of the district, the number of persons employed, cost of mining, &c., I issued a circular to the operator or superintendent of each mine, soliciting information on the following points:

Total number of tons mined, of 2,000 pounds each, in 1879.

Average number of persons employed inside.

Average number of persons employed outside.

Average number of mules and horses employed.

Price paid per ton for mining.

Number of days worked in 1879.

Estimated amount of powder used per ton of coal.

Number of steam pumps used for drainage.

Number of steam engines employed for hauling and taking coal out of mine.

Number of boilers employed.

Improvements made inside and outside during 1879.

From some of the mines I received the circular properly filled, and an anxiety shown to give all information wanted; others objected, stating that they were opposed to having their business published, &c.

From the reports received, I find that the aggregate amount of

coal mined in thirty mines was, tons,		777,600
Average production for each mine, tons,		25,920
Average number of days worked,		240
Number of miners employed, (in thirty mines,)	1,440	
Day hands employed, (in thirty mines,)	246	
Total number employed,		1,686
Average number of miners in each mine,		48
Average number of tons for each miner per day,		$2\frac{25}{100}$
Average number of tons mined, for each miner during the year,		540
Average price paid per ton for mining,		60 cents.
Average amount earned by each miner,		$324 00

Taking the reports received from the thirty mines as basis of calculations to compute the production of the district, we will have for the sixty-one mines in operation in 1879, an aggregate production of, tons		1,581,120
Number of miners in the district	2,928	
Day hands employed	500	
Total number employed		3,428
Number of accidents reported, (1 fatal, and 20 non-fatal,)		21
Being one accident to 75,291$\frac{3}{7}$ tons.		
Causes of accidents :		
By fall of coal		4
By fall of roof		7
By explosion of powder		2
By mine cars		3
By sundry causes		5
In the district there are mines operated by drifts		40
Mines operated by shafts		17
Mines operated by slope		4
Number of air shafts		49
Number of mines ventilated by fans		3
Number of mines ventilated by furnaces		31
Number of mines ventilated by exhaust steam		16
Number of new furnaces built in 1879		10
Number of new fans built in 1879		2

TABLE OF ACCIDENTS *reported to the Inspector of the Second Bituminous Coal District of Pennsylvania, and nature and cause of each accident, for the year ending December 31, 1879.*

Number.	DATE.	Name of person injured.	Age.	Married or single.	Number of orphans.	Name of colliery.	Location of colliery. County.	NATURE AND CAUSE OF ACCIDENT.
1	Jan. 14	Robert Jones, ...	40	Single, . .		Catfish, ...	Clarion, .	Leg and arm broken. Accident occurred while drawing back entry stumps, by fall of roof.
2	Feb. 19	William W. Price, . .	38	do. . . .		Stoneboro', ...	Mercer,	Cut and bruised about head and body. Occurred while driving slope for travelling-way, and working up from inside, when up about eighty feet the gravel and sand, mixed with water, broke in from the top and sides and carried them down to the bottom with great force, and coming in contact with a car that had been left standing at bottom of slope, they were badly cut and bruised about head and body.
3	" 19	Herbert Edwards, . . .		Married, . . .		do.	do.	
4	" 19	William Lewis, ...	15	Single, . . .		do.	do.	
5	Feb. 25	Paul Miller, ...	60	Married, . . .		Neshannock, No. 2,	Mercer, .	Arm cut by fall of slate.
6	March 26	Andrew Jackson, . .	39	do. . .		Fairmount, . . .	Clarion, .	Bruised, not seriously; caused by a fall of slate.
7	May 5	Lloyd Williams, . .		do. . . .		Catfish, ...	do.	Leg injured by a fall of coal.
8	June 7	Reese Harris, ...	48	do.	6	Home Bank, ...	Mercer, .	Bruised by a fall of coal. Collar-bone broke, and injured internally, proving fatal in four days. He had been trying to wedge a piece of coal down, and had given it up, thinking that it would not come, and as he was about leaving, and had his side turned towards the coal, it fell.
9	June 7	John Laing, ...	61	Married, . . .		Carbon Run, ...	Mercer,	Face injured by a shot going off unaware to him.
10	" 19	Thomas Walters, . . .	50	do. . . .		Fairmount, ...	Clarion, .	Shoulder dislocated and hand lacerated by a fall of coal.
11	" 28	Anthony Yates, ...	40	do. . . .		Barnes, ...	Butler, . .	Leg broken by a fall of roof, while drawing entry stumps.
12	July 10	William Parker, . .	14	Single, ...		Hickory, ...	Mercer, .	Hand bruised between car wheel and rail.
13	" —	George Gunter, ...	13	do. . . .		Sligo Branch, ...	Clarion, .	Collar-bone injured by being caught between car and rib.
14	Oct. 22	Mich. Cummins, . . .	35	Married, . . .		Philadelphia, . . .	Venango,	Back injured by a fall of slate.
15	" 24	John Young, senior, .		do. . . .		Bethel, No. 2, ...	Mercer, .	Hurt by a fall of slate, while making room for double parting.
16	" 24	John Young, junior, .	15	Single, . .		Bethel, No. 2, . . .	do.	Hurt by a fall of slate.
17	" 25	Robert Doyle, ...	14	do. . . .		Stoneboro', ...	do.	Arm broken between elbow and wrist, caused by a fall.
18	Nov. 26	William Armstrong, .	45	Married, . . .		Hickory, ...	do.	Foot slightly bruised by a fall of coal.
19	" 26	Robert Givens, . .	50	do. . . .		Hickory, ...	do.	Head bruised, being struck by a pole that raises the apron on the screen.
20	" 26	George Cunningham,	24	Single, . . .		Hamilton, ...	Jefferson,	Hand hurt and finger cut off by coupling cars.
21	" 29	James O'Donnel, . . .	22	do. . . .		Pardee, ...	Mercer, .	Burnt by an explosion of powder while tamping a shot.

HITE NO. 2.

There have been great improvements made at this mine, both inside and outside, during the year 1879. The outside improvements consist of a new tipple and coal chutes, new incline plane, &c.

The new tipple and chutes were put up with an eye to facilitate the handling of coal and to lessen the labor.

The new incline plane is built with double track laid with T rail, fifteen pounds to the yard. Length of plane, forty-five feet. The coal is let down by a wire rope three-fourths of an inch diameter, over a drum four feet diameter and twelve feet in length.

At the top of this plane there is a system of scotches worthy of notice. This ingenious arrangement keeps both roads scotched at the knuckle on top of the plane until the checkman takes hold of the brake and steps on a platform, which, by his weight, removes the scotches and throws the roads open for the full car to descend. He remains on the platform handling the brake until the empty car reaches the landing on top. The moment he moves off the platform to change the cars on top, the scotches fly back across the roads, and secure the roads until he has put the full car in proper positions to descend, and steps to the platform again.

I think it would add greatly to the safety of persons employed at the bottom of incline planes if the same or similar arrangements were adopted on the top of all planes.

Among the inside improvements of this mine, there has been completed during the year one of the best furnaces in this district. The drawings of this furnace have been furnished me through the kindness of Mr. W. H. Wood, and they are sent accompanying this report for publication.

Mr. Hugh Wood, and his son, W. H., belong to the class of mine bosses that takes pride in what they do, and when they undertake anything they want to do it right.

This furnace, I have been informed, was planned and built under the supervision of W. H. Wood.

The furnace is built with double arches. The space between arches is one foot and six inches wide.

The foundation on which the furnace is built is twenty-five feet long and fifteen feet wide from out to out. The top of the foundation wall is level for the distance of ten feet from the front, and from that point to the shaft it rises at an angle of eighteen degrees, making the total length on top of foundation twenty-six feet.

The inside arch runs back ten feet level, and from that point back to the shaft, at an angle of twenty-two and one half degrees of elevation. Whole length of arch, twenty-seven and one half feet. It extends about eighteen inches into the shaft.

Width of arch seven feet across the grate bars, and seven feet high from hearth to crown.

The grate bars are seven feet long. Heighth above bars at the front, four feet four inches, and three feet six inches at the bridge.

The furnace is located at the bottom of a shaft sixty feet deep and seven feet in diameter, with a brick stack of the same size, and thirty-eight feet high built on top.

The capacity of the furnace has been tested to eighty-five thousand cubic feet of air per minute.

The air-courses in this mine are large and roomy. The entries are driven nine feet wide, and most of the mine is worked on the double-heading system.

This mine was formerly operated by the Etna and Vesuvius Coal Company, but since last spring it has been in operation by Mr. P. Y. Hite.

Mr. Hite is also operating the Bellview mine, which is working the same seam of coal, and the mine is similar in many of its characteristics to the Hite No. 2.

The Bellview is under the management of Mr. John M. Watt. The mine has not been running to its full capacity during the year 1879.

BURNETT MINE.

Located in Butler county. Operated by Andrew Burnett. Mining boss, Jacob Liston. Drift opening, with T rail on entry roads. Gauge of mine roads, three feet one inch. One inlet, six feet by seven feet. Traveling-way the main hauling-way. Two openings. All the mining done at time of last visit in two entrys. Size of entry, seven feet wide, by from five feet six inches to six feet high. No regular distance between entries. System of working, rooms and pillar. Rooms, twenty-one feet wide, and pillars about fifteen. Thickness of coal, from five feet six inches to six feet, including a band of slate about eight inches thick, about the middle of the coal. Mr. Burnett claims the coal to be of superior quality for coke, having been tested in some of the furnaces in Mercer county. He intends, at some future day, to build coke ovens at his works.

The mine, at times, is troubled with water from the surface, and at one time a steam pump was placed on the main-hauling way, and the steam conducted in pipes from a boiler on the outside. The heat from the pipes, and the leakage of the steam at the joints, made it disagreeably hot on part of the road. I measured the temperature, and I found it as high as 90°, while the outside temperature only registered 53°. Mr. Burnett promised to place the pump on the outside the next day after my visit, and attach syphon pipes to it. The ventilation, after the pump is removed, will be changed, the present inlet will be the outlet, and with the repairs ordered on the furnace, the mine will be in fair condition.

MINES OF THE M. M. & M. COAL COMPANY.

Barnes mine, located in Butler county, and Pardoe mine, located in Mercer county.

BARNES MINE.—Operated by drift. There are several openings to this mine. At the time visited there were two inlets, having twenty-two and thirty feet area. Traveling-way is a short slope. Two headings working.

EUREKA FURNACE.

Built by

W.H.WOOD,

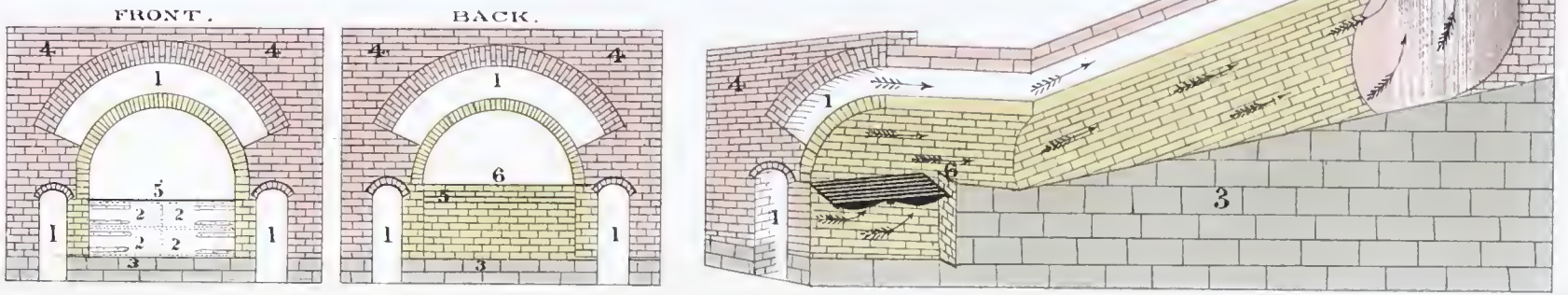
IN ETNA AND VESUVIUS COAL MINE.

at Hite Station, Allegheny Co. Pa.

Accompaning the report of J.J. DAVIS, Mine Inspector.

1. AIR CHAMBERS.
2. REGULATORS
3. STONE WORK.
4. BRICK WORK.
5. BAR PLATES.
6. BRIDGEWALL.

SCALE 1/10 INCH TO FOOT.



Size of heading, six feet six inches wide, by five feet six inches high. There is only one entry on face of coal. Cross-entries are from one hundred and sixty to one hundred and eighty yards apart, with rooms on both sides. Rooms are twenty-one feet wide, with pillars twelve feet. Thickness of coal, about three feet. The main hauling roads are corduroyed. This is rendered necessary by the soft nature of the bottom, owing to the water softening the fire-clay. The roads are laid with T rails, with T rail-partings to the rooms, which makes the best underground hauling-ways. Gauge of road, thirty inches. I have been informed that the seam of fire-clay under this coal, is twelve feet thick.

There is an up-cast shaft for outlet. Depth of shaft, thirty-eight feet. Size, seven feet by five, with a board stack on top. The ventilation is assisted by exhaust steam, from pumps. I suggested to Mr. Jenkins, when at the mine, to carry steam from the boiler on the surface, down to near the bottom of the up-cast, which would also assist to increase the ventilation. The drainage is forced by a steam pump. Mine superintendent, F. H. Oliphant. Mining boss, George Jenkins.

Pardoe Mine.—Drift opening with two shafts from surface to the inside workings. At time of last visit, one was used for a down-cast, and the other for an up-cast. Water was pumped out of the mine through the down-cast, but owing to the steam pipes being also taken down through the same shaft, it operated against the ventilation. Mr. Oliphant promised to change the ventilation, by converting the down-cast to an up-cast, and erecting an exhaust fan on top. Since my visit the fan has been put up, and I have received word from the superintendent, that "our new fan here is quite a success." At time of visit there were three entries working. Size of heading, six feet six inches by five feet six inches. System of working-room and pillar—room twenty-one feet wide, and pillars nine feet. Thickness of coal, I was told, would average four feet nine inches through the mine.

Roads have T rail on main entries, and three by four wooden rail on cross entries. Gauge of road, thirty inches.

Depths of air-shafts—down-cast, one hundred and twelve feet, size six by eight feet; up-cast or furnace shaft, depth sixty-five feet from surface, size six by six, with a stack on top, from fifty to sixty feet high. The furnace at the bottom has a heating surface of thirty-six square feet. I found by air-measurements, that there was a velocity of one hundred and seventy feet per minute near inlet, sectional area, forty-two square feet. A velocity of seventy-five feet per minute in air-course between Nos. 9 and 10 entries, and in a place ten feet wide by six high, near furnace, I found the velocity to be three hundred and thirty feet per minute. Mine drained by steam pump. Superintendent, F. H. Oliphant. Mining boss, J. S. Humphreys.

JACKSON MINE.

Operated by the Jackson Coal Company. J. P. Kerr, manager, and Nathan Ball, mining boss. Drift opening, T rail on roads at mouth of mine,

and wooden rail three by four through the mine. Gauge of road, three feet two inches.

There are two inlets; traveling-way the main hauling-way. Size of heading, six feet wide by five feet high. Rooms eighteen feet wide, and pillars nine feet.

There has been a new air-shaft sunk, and a new furnace built during the year, which improved the ventilation.

The furnace is built with side feed, and in place of standing in front of the furnace, as the furnace firemen used to do while coaling and cleaning bars, and be exposed to the intense heat, he can coal and clean bars through a hole in the side wall, which can be closed as soon as the fire is put in proper order.

By reports received from this mine since the new furnace was completed, it is manifest that there has been quite an improvement, and a large increase in the volume of air. Mr. Ball, the mining boss, in speaking of the change in the ventilation, says the current is almost double.

STONEBORO' MINE.

This mine, as stated in a former report, is operated by a slope which is about eighteen hundred feet in length.

On my first visit I noticed that the slope was made use of for a traveling-way, and that no other was convenient and in suitable condition for ingress or egress. There were other openings to the mine, but owing to the long distance to travel and that the same were used for water-courses, &c., their condition made them unsuitable, and they were far from being in compliance with the ventilation law, were it says, that one opening shall be set apart exclusively for ingress and egress.

I called Mr. Esgar, the mining superintendent's attention to the matter He promised to lay my request before the company, for the purpose of having their consent to open a new traveling-way to the mine, and now I am happy to say that he has been successful and that there is a good traveling-way completed to the Stoneboro' mine, and that the miners and others employed in the mine are no longer necessitated to risk their lives in following full trains on the slope. The traveling-way is part slope, and part shaft. The original plan was to make the whole distance by slope, from the inside out, and William W. Price, Herbert Edwards, and a boy by the name of William Lewis were employed to have the job completed When they had arrived to within twelve or fifteen feet of the surface, and were up about eighty feet from the bottom, the ground above and to the side of them gave away, while they were in the act of putting up a set of timber, and hurled them down to the bottom. The whole three were severely injured, especially the boy Lewis, whose face was badly lacerated.

The ventilation of this mine is produced by the action of two furnaces. At the time of last visit there was an air-course being driven, which was intended to shorten the distance of the return air.

Velocity of air near No. 1 furnace, four hundred and fifty feet per minute; velocity near No. 2 furnace, six hundred and eighty-five feet per minute.

This mine employs a large number of persons and is one of the largest in the district.

MAPLE GROVE MINE.

Located in Mineral township, Venango county. Owned and operated by S. P. McCalmont. Drift opening. Mine worked on the room and pillar system. Size of headings, six feet wide and five feet six inches high. Rooms twenty-one feet wide, with pillars twelve feet wide. Gauge of road, thirty inches. Drainage produced by natural means. Ventilation by furnace.

There has been a new shaft sunk and a new furnace built in 1879, and the ventilation of the mine put in good condition.

Mining superintendent, Charles A. Kinney.

NESHANNOCK, NO. 2 SHAFT.

Operated by J. Phillips & Co. Shaft, eighty-two feet from surface to coal; size, 17′×8′. There is 12′×8′ used for hoisting purposes, and 5′×8′ for air chamber. The mine is worked on the same system as is in general use in the block coal region; the entries driven in the swamps. Size of entries, 7′×5′. Rooms are twenty-four feet wide, where the top is strong, but only fifteen feet wide in some parts of the mine, on account of the tenderness of the roof. Pillars, six feet.

There has been a second opening shaft sunk to this mine, finished in the month of July. Drainage produced by a No. 8 Cameron steam-pump.

Ventilation assisted by exhaust steam.

Mining boss, Adam Perseh, junior.

CANNELTON MINE.

Operated by I. F. Mansfield. Located in Beaver county. During the year there has been a new furnace and a small fan built in this mine, also new air-courses opened out, which was rendered necessary on account of pressure having crushed in part of the mine, closing the return air-courses.

Owing to the long distance the air travels in this mine, the friction is greatly increased, which rendered a fan in the inner parts of the works necessary to assist the action of the furnace. The mine has been in operation for several years. Its general condition is favorable.

BEAVER MINE.

Operated by Lee & Patterson. Located in Lawrence county. During the year this mine has been part of its time idle. In March, 1879, they had completed the sinking of a new air-shaft, 105 feet deep—size, 8′×9′. The shaft is also used for drainage. A Blake steam-pump is placed near the bottom. The mine, when in full operation, employs over one hundred persons. Superintendent, W. W. Hamilton.

Most of the mines in the district have made some improvements in their ventilation, drainage, &c. And the persons having charge of the mines, generally show a disposition to better their condition, and bring them fully up to the standard required by the ventilation law. Several of the mines running in 1879, especially those in Beaver and Lawrence counties, have not been working to near their full capacity during the year, for the want of orders for coal. The year 1880 dawns with prospects which I hope will be improved by the miners of this region.

These mines have a good quality of coal for both mill and furnace purposes, and, with the improvement in the iron business, undoubtedly their demand will be largely increased.

NEW MINES OPENED IN 1879.

SOLDIER RUN MINE.—Located in Jefferson county, at Reynoldsville. Operated by Power, Brown & Co. Superintendent, James A. Powers. Mining boss, Richard Smith.

Drift opening, with coal conveyed over an incline plane one hundred and sixty feet long, with double track. The cars are let down the plane by a steel wire rope attached to dummies, which lead the full car down and follow the empty up.

The mine is worked on the double heading system; size of heading, eight feet by five feet six inches; the hauling-ways and air-courses the same size. Rooms are twenty-one feet wide and pillars nine feet. Gauge of road, thirty-eight inches.

Drainage by natural means; the roads dry and in good condition.

Ventilation produced by furnace. The furnace was completed in November, and with proper attention to the same, the workings can be supplied with sufficient quantity of good pure air. The position of the mine and the thickness of the coal are in its favor, and with proper management continued, the work will always rank among the best mines in the region.

The company has erected, for the purpose of handling the coal at the bottom of the plane, one of Upson's patent tipples and coal conveyors. A drawing and description accompanies this report. By the use of this tipple and conveyor the coal is handled carefully and prevented from breaking and smashing into slack.

UPTON'S DESCRIPTION OF THE NEW TIPPLE, COAL CHUTES, AND CONVEYOR.

The tipple consists of an iron car with two axles which support two rails, on which the car from the mine is run. The rails are curved at *L* to receive the forward wheels, and hold the car in proper position. The hind axle of the tipple *V* is curved, so as to pass under the car track.

The forward axle is just below the front end of the car when it is on the tipple. The gauge of the track *KK*, on which the hind wheels of the tipple run, is about sixteen inches wider than the car track, and allows the wheels to be far enough a part to permit the car axles to pass through without hitting.

COAL CONVEYOR, AT [illegible]PWERS, BROWN & CO'S. MINE.

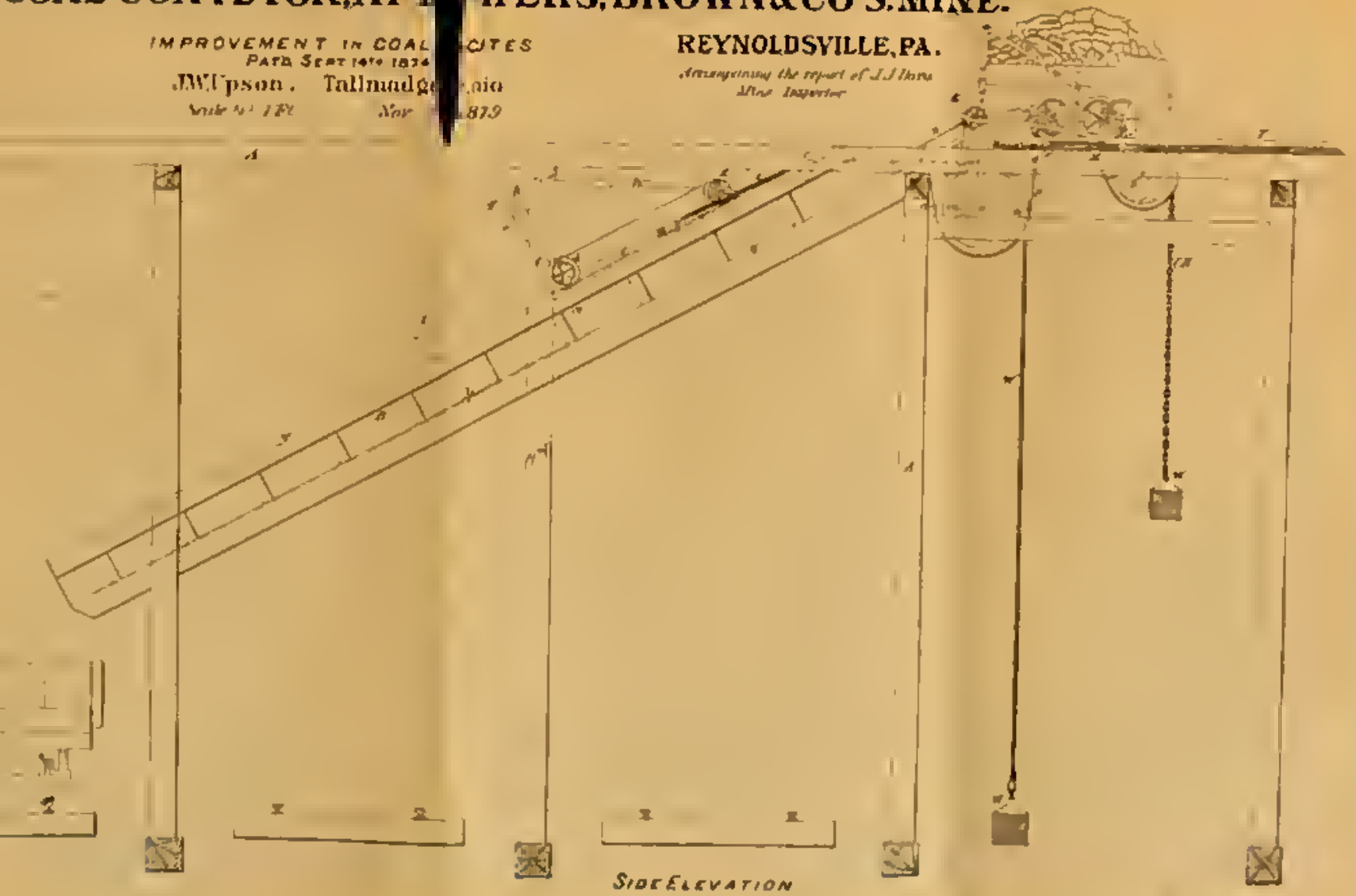
IMPROVEMENT IN COAL [illegible]CUTES
PATD SEPT 14TH 1874

J.W. Upson. Tallmadge, Ohio

Witness: [illegible] Nov [illegible] 1879

REYNOLDSVILLE, PA.

Arrangement as per report of J.J. Hare Mine Inspector



SIDE ELEVATION

S.H. PITKIN DEL.

The gauge of the track for the forward wheels, and which takes the place of the two of the screen bars, is about eight inches wider than the car track. The apron *X*, which is a plate of steel, is hinged to the forward axle at its upper side, and supported below by rollers which run on the track. A balance weight *W''* is attached to the tipple by the chains *CH*, which pass over the sheaves *SS*, and is just heavy enough to bring back the empty car after the coal has been run out. Attached to the sheaves *S* is a wheel on which the brake works, which is controlled by the lever *M*.

To dump the car, the gate at front end is opened and as much coal as will run readily, allowed to pass out, and then the tipple with the car on it is pushed forward, and while the front end is running down the track on the incline of the chute, the back end is running up the incline track *KK*, which carries the car into such a position that all of the coal runs out. With this arrangement, the first coal in the car, which is usually largest lumps, instead of falling from three to six feet on the solid bottom of the chute, merely drops to the elastic apron *X*, which saves them in a great measure from being broken to pieces, and the balance of the coal, instead of being pitched over the screen with great velocity, is allowed to slide out easily, over the apron, and to the screen. One man can usually dump the car and move it forward faster or slower as he chooses, and by dumping properly the coal can be screened much more perfectly and broken up less than in any other way. It is not often that it is necessary to use the brake, but with it the motion can be controlled or the car held at any point.

A represents the supporting-frame of the chute, consisting of base, uprights, cross-pieces, &c. *BB* are the sides of the chute; *b* the bottom, and *b'* a screen in the bottom. The sides *BB*, on their upper edges, are provided each with a rail, *y*. *CC C'C''* represents the frame of the traveling gate-carrier, to which the gate and its auxiliaries are attached.

Each side is provided with two flanged wheels *dd*, and adapted to run upon the rails *yy* upon the sides of the chute. The sides *CC* are so supported that they fall just below the line of the upper edge of the sides of the chute, extend above, and form an addition to said sides. To the lower cross-piece *C'* the gate *e* is hinged. It extends entirely across said frame, and closes the opening between the sides. It is secured to two or more uprights, *ff* which are pivoted to said cross-piece by a common bolt-rod. The uprights *f* are extended above the gate, and a heavy rod *g*, is secured to their ends, which, on one side, extends beyond the gate, and over the side of the chute. To the other cross-piece *C''*, and about midway of it, one end of a long bar *h*, is hinged. The other end of the bar extends over the bar *g*, and when the gate is closed, a notch *h'* in said bar catches upon said rod, and holds the gate to its closed position. An iron, *a*, fastened at the lower ends to the cross-piece *C'*, passes around the lever *h*, and prevents it from raising higher than necessary to let the gate open. The swing *S*, is hung in such position as to receive the end of the lever *h*, when the gate and carrier descend to the lower mouth of the chute, the bar *h*

will be held up from the rod g, and allow the gate to open. The other, and open end of the carrier-frame CC is secured by means of ropes cc, which pass over pulleys $c'c'$ to a windlass m.

This windlass consists of a double wheel on each end of its shaft, upon one of which the rope c is wound, and upon the other, and in reverse direction, a rope w', which is attached to a weight w. This weight is more than sufficient to counterbalance the gravity of the gate and carrier; and its rope being wound upon the windlass in direction the reverse of rope c, when the carrier descends, the weight will be elevated, and when the carrier is allowed to ascend, it will be carried up by the descent of the weight. To ease the weight in its descent, and prevent the jar which otherwise would be consequent upon its sudden stopping, two or more short, but heavy chains are hung from the weight box, and on coming to the ground, gradually diminish the weight, until the gate comes to a point where it balances, and from which it is ready to start down again with a small amount of coal. The lever-handle r controls the brake qpo, which operates upon the windlass by means of the strap-rubbers nn, and by its use, the turning of the windlass can be controlled, and the descent or ascent of the gate and carrier regulated. S is a swing hung to a cross-beam of the frame at a point, so that when the gate reaches the lower end of the chute, the lever h will come into it, and be raised so as to let the gate open, and also check the impetus which it has gained in its descent, and give it an ascending start.

An incline l is attached to the side of the chute, the object of which is to present a surface against which the elongated end of rod g will strike in the ascent of the gate, and cause it to close.

The gate with its attachments, and the carrier being in the position shown in the drawing, and the operator standing so as to manage the brake-lever, coal is dumped into the chute at its upper end. The angle of inclination of the chute is such as to cause the coal to slide down until it reaches and is stopped by the gate, and in so doing it is screened by the screen b', and the fine coal passes through to such additional screens below as may be necessary. When a sufficient quantity has been added to more than counter-balance the weight w, the gate will descend unless the brake is used and allow the coal to pass off; but, being controlled by the brake in the hands of the operator, it is held to its position until the proper or desired load is received, when it is allowed to descend. Its rapidity of motion in making the descent is, to a great extent, modified by the ropes, windlass, and weight unassisted, but is entirely controlled by the brake. When it reaches the lower end of the chute, the swing S will hold up the end of lever h, and as soon as it becomes disengaged from its hold upon rod g, the coal, of its own gravity, will force the gate to swing open, and will pass out beneath it from the chute to the car or vessel which stands ready to receive it. When the gate is forced open, the weight of rod g will carry it to the final position. To counteract the effect of the impetus which may have

been imparted to the gate and carrier in its descent, and prevent it from carrying it too far after being discharged of its contents, the end of the lever *h* still remaining in the swing *S*, the carrier will, at one end, swing slightly from the track until its downward progress is checked, when it will be carried back by the weight to its first position to receive another load. In passing up, the elongated end of rod *g* strikes against the incline *l*, closes the gate, and the notch in bar *h* catches upon the rod *g*, and latches the gate to its closed position. The shock of the descent of the weight is relieved by two or more chains six or eight feet long, with heavy links hung below the weight box, which, on reaching the ground, gradually lessens the weight; but, instead thereof, spring bumpers, to receive and stop the car, could be substituted, or other elastic yielding device be used for the purpose. Proper handling of the brake will obviate all necessity of this elastic bumper.

HAMILTON MINE.

Mine located at Reynoldsville, Jefferson county. Operated by the Hamilton Coal Company.

This mine had been doing but very little prior to 1879, but at present it is an extensive mine, having a capacity of three hundred tons per day.

The mine is a drift opening. There are four openings to day, two drifts and two shafts. The mine consists of one main entry, with cross-entries. Size of main entry, ten feet wide by five feet six inches high. Cross-entries, eight feet wide and five and a half feet high. Gauge of road, thirty-seven inches. Rooms twenty-one feet wide, and pillars twelve. A part of the workings of this mine are through to the old Hoover mine. The mine roads are dry and in good condition. The ventilation of the mine is produced by a furnace, which was completed in last November. Coal is conveyed to the railroad over an incline plane three hundred feet long. The arrangements for handling the coal at the bottom of the plane are in part similar to those described at the Soldier Run mine.

Mining boss, John Lowther.

FAIRMOUNT, NO. 4, MINE.

Operated by the Fairmount Coal Company. Located near Fairmount City, in Clarion county. This is a new mine, commenced running in 1879. Working a lower seam of coal, in the coal measures, than that worked by the Fairmount, No. 1, mine. The mine consists of a drift opening. Size of heading, ten feet wide and five feet high. Rooms twenty-four feet wide, with pillars sixteen feet. Gauge of road, thirty-six and a half inches. Roads dry and in good order at time of visit.

The ventilation has been improved by a new furnace being built, and the mine in general is in a fair condition. The company is also making outside improvements, having built a number of coke ovens, for the purpose of manufacturing coke.

Superintendent, J. M. Brinker. Mining boss, Rowley Henry.

PINE RUN MINE.

Located on the Allegheny Valley railroad, about a mile and one half below East Brady, Clarion county. Owned and operated by Stephenson & Mitchell. This is a new mine, only been in operation about four months in 1879. The capacity of the mine raised, before the end of December, to one hundred and fifty tons per day. The mine is operated by two drifts, one on the north and the other on the south side of the run. There is an air-shaft thirty feet deep sunk into the workings on the north side, and preparations making on both sides to have the mine well ventilated. The coal is taken over an incline plane four hundred and eighty-one feet long, and loaded into cars, on the Allegheny Valley railroad, for shipment.

Mine superintendent, Thomas Mitchell. Inside boss, William Gent.

BRADY'S BEND MINING COMPANY'S MINE.

This mine is situated in Clarion county, between East Brady and Catfish mines, on the Allegheny Valley railroad. It consists of a drift opening, having one main and two cross-entries. The mine has been running very irregular, and doing but little from the time it was opened until the close of 1879. There is a double track T rail incline plane, four hundred and fifteen feet long, to bring the coal to the railroad for shipment. The roadways through the mine are dry and in proper order.

The ventilation is not completed. There is an air-shaft sunk, but there is no furnace built, and the approaches to the bottom of the shaft are not yet in proper order. I have given some instructions, which, when carried out, will better the ventilation.

The mine, with proper management, can be made into a good mine. Superintendent, C. F. Hartwell. Inside boss, George Henry.

DUNCAN SHAFT.

A new shaft sunk by the Duncan Coal Company, in 1879. Located in West Salem township, Mercer county. Superintendent, John P. Morris. Mining boss, Thomas E. Thomas. The shaft is sixty-five feet from surface to coal. Size, seven by fourteen.

The openings at the bottom are to the north and south sides of the shaft. There are three entries on the north side, and four on the south side.

The entries are driven seven feet wide and five feet high. Rooms, twenty-seven feet, and pillars ten. Gauge of road, thirty-three inches.

At the time I visited this mine, in December, they had only one opening. I ordered the second opening, and the number of men reduced to not over twenty men at any one time in the mine until the second opening would be completed and made available. There is one engine employed for winding, and one flue boiler twenty-five feet long and forty-eight inches diameter.

One Blake No. 9 steam pump used for drainage in the mine.

Ventilation by exhaust steam. The hoisting part of the shaft used for down-cast, and the air-chamber part of the shaft used for up-cast.

Enoch Filer has a new shaft, sunk in 1879, on the hill east of Sharon, in Mercer county, but not having railroad connections, the workings have been very limited, and the number of men employed less than the number required to become under the provisions of the ventilation law.

Mr. Filer intends to have railroad connection completed soon, and the number of men employed increased.

E. A. Wheeler has a shaft sunk, in 1879, south-west of West Middlesex, Mercer county, but the mine is not far enough advanced to be reported.

TABLE *showing list of Collieries, &c., in the Second*

NAME OF COLLIERY.	WHERE LOCATED.
Red Bank Furnace Mine,	Clarion county,
Stewardson Furnaee Mine,	Armstrong county,
Mineral Ridge Coal Mine,	On A. V. railroad, at West Monterey,
Reimerton Coal Works,	do. do. Reimerton Station,
Mahoning Coal Works,	do. do. Mahoning Station.
Sligo Braneh Coal Works,	On Sligo Braneh of A. V. railroad,
Fairmount Coal Mine,	Low Grade Division of A. V. railroad,
Mahoning Furnace Mine,	Mahoning Creek,
Home Bank,	Four miles southeast of Sharon,
Oakland Shaft, No. 2,	Six miles southeast of Sharon,
Oakland Shaft, No. 3,	.
Neshannock, No. 2,	Neshannoek,
Hiekory Mine,	Hickory township, Mereer eounty,
Bethel Shaft, No. 1,	Bethel, Mercer county,
Bethel Shaft, No. 2,	Sampletown,
Paeifie Slope,	Near Sharon,
Orangeville Shaft,	About five miles west of Greenville,
Pine Creek Furnaee Mine,	Four miles from Pine Creek Station, A. V. railroad,
Natrona Mine,	On West Pennsylvania railroad,
Catfish Mine,	Catfish Station, A. V. railroad,
Lower Hillville,	Lower Hillville Station, A. V. railroad;
Monterey Mine,	About a mile above Monterey Station, A. V. railroad,
Bellview Mine,	On the West Pennsylvania railroad, Allegheny county,
Hite, No. 2,	do. do. do. do.
Cannelton Mine,	Cannelton, Beaver eounty,
Beaver Miue,	Near Clinton Station, P. and E. railroad, Lawrenee co.,
Clinton Mine,	do. do. do. do.
Welsh Bank,	Near Wampum, Lawrenee eounty,
Wallace Shaft,	Two and one half miles west of New Castle,
Shoaff Mine,	Northeast of New Castle, Lawrence county,
Coal Center Mine,	Four miles northeast of New Castle, Lawrenee county,
Davidson Mine,	Near Wampum, Lawrenee county,
Paneoast Mine,	Paucoast Station, Low Grade Division. A. V. railroad,
Washington Mine,	One mile east of Pancoast Station,
Diamond Coal Mine,	Near Reynoldsville, Jefferson eounty,
Burnett Mine,	Shenango and Allgheny railroad, Burnett's Station,
Barnes' Mine,	do. do. Harrisville Station,
Pardoe Mine,	do. do. Pardoe Station,
Jackson Mine,	At Jaekson Center, Mereer county,
Stoneboro' Mine,	At Stoneboro, on the N. C. and Franklin railroad,
Maple Grove Mine,	Near Reymilton, Venango county,
Clarion Mine,	Near Clarion, Clarion county,
Cranberry Mine,	Terminus of Oil City and Ridgway railroad,
Baker Bank,	Clinton, Beaver eounty,
Karns City Coal Mine,	Near Karns City, Butler eounty,
Hamilton Mine,	In Jefferson county,
New Bethlehem Mine,	In Armstrong eounty,
Dunean Shaft,	West Salem township, Mereer county,
Filer Shaft,	Near Sharon, Mercer county,
Wheeler Shaft,	Near West Middlesex,
Soldier Run Mine,	In Jefferson county,
Fairmount Mine, No. 4,	Low Grade Division of A. V. railroad,
Pine Run Mine,	About one and one half miles below East Brady,
Brady's Bend Mine,	Between East Brady and Catfish,
Laird Mine,	Near Wheatland, Mereer eounty,
Beaver Fall Mine,	Near Beaver Falls,
Beaver Block Mine,	Near Cannelton,
Hoffman Slope,	Near Sharon,
Carbon Run Miue,	In Mereer county,
Wise Shaft,	Near Neshannock, Mercer county,
McElhinney Mine,	French Creek twp., Venango county,

Bituminous Coal District of Pennsylvania.

NAME OF COMPANY.	NAME OF SUPERINTENDENT.	POST OFFICE ADDRESS.
Reynolds & Morehead,	David Reynolds,	Red Bank Furnace P. O.
F. B. & A. Laughlin,	A. Laughlin,	Mahoning P. O., Armstrong co.
T. J. Skidmore,	C. W. H. Eike,	West Monterey, Clarion county.
Reimerton Coal Company,	J. D. Hewitt,	Rimerton P. O., Armstrong co.
Mahoning Coal Company,		Mahoning P. O., Armstrong co.
Sligo Branch Coal Company, Limited,	Samuel Coon,	Reimersburgh, Clarion county.
Fairmount Coal Company,	J. M. Brinker,	New Bethlehem, Clarion co.
Wesley Wilson & Co.,	Wesley Wilson,	Oakland P. O., Armstrong co.
Buhl, Westerman & Co.,	F. Buhl,	Sharon, Mercer county.
Peirce, Frampton & Co.,	Walter Pieree,	Sharpsville, Mercer county.
Oakland Coal Company,	do.	do. do.
J. Phillips & Co.,	J. Phillips,	Neshannock, Mercer county.
Spearman & Co.,	J. J. Spearman,	Sharon, Mercer county.
Bethel Coal Company,	James Spears,	do. do.
Curtis & Boyce,	do.	do. do.
Dunham, Roberts & Co.,	W. B. Dunham,	do. do.
Morris Coal Company,	George Frack,	Orangeville, Ohio.
Brown & Mosgrove,	J. P. Painter,	Pine C. Fur. P. O., Arm'g co.
Pennsylvania Salt Manufacturing Company,	W. H. Richards,	Natrona, Allegheny county.
Pittsburgh Coal and Mining Company,	W. D. Mullen,	Catfish P. O., Clarion county.
do. do. do.	do.	do. do.
John McCollum,	John McCollum,	Oil City, Venango county.
P. Y. Hite,	P. Y. Hite,	Hite P. O., Allegheny county.
do.	do.	do. do.
I. F. Mansfield,	I. F. Mansfield,	Cannelton P. O., Beaver county.
Lee & Patterson	W. W. Hamilton,	Rock Point P. O., Beaver co.
Clinton Coal Company,	Charles Harmony,	do. do.
Wampum Furnace Company,	John McCleery,	Wampum P. O., Lawrence co.
Sharpless & Kincaid,	M. C. Sharpless,	New Castle, Lawrence county.
Bay, Shoaff, Spears & Co.,	George Shoaff,	do. do.
Neshannock Coal Company,		do. do.
W. B. Enos & Co.,	W. B. Enos,	Wampum, Lawrence county.
Heim, Goodwill & F. Williams,	Henry Williams,	Pancoast P. O., Jefferson co.
Frank Williams,	do.	do. do.
Diamond Coal Company,	John Goodwill,	Reynoldsville, Jefferson county.
Andrew Burnett,	Andrew Burnett,	Hilliards P. O., Butler county.
Mercer Mining and Manufacturing Company,	F. H. Oliphant,	Pardoe P. O., Mercer county.
do. do. do.	do.	do. do.
Jackson Coal Company,	J. P. Kerr,	Jackson Center, Mercer county.
Mercer Iron and Coal Company,	B. F. Esgar,	Stoneboro', Mercer county.
S. P. McCalmont,	Charles A. Kenney,	Reynilton P. O., Venango co.
Clarion Coal Company,	W. W. Greenland,	Clarion, Clarion county.
Cranberry Coal Co., (James Kennedy, lessee,)	James Kennedy,	South Oil City, Venango county.
L. S. Hoyt,	L. S. Hoyt,	Rock Point, Beaver county.
H. R. Fullerton,	William Penberthy	Karns City P. O., Butler county.
Hamilton Coal Company,	J. D. Lowther,	Reynoldsville, Jefferson county.
Sandy Lick Coal Compony,	William Sharpe,	New Bethlehem, Armstrong co.
Duncan Coal Company,	J. P. Morris,	Orangeville, Ohio.
	Enoch Filer,	Sharon, Mercer county.
Wheeler Iron Company,	E. A. Wheeler,	West Middlesex, Mercer county.
Powers, Brown & Co.,	James Powers,	Reynoldsville, Jefferson county.
Fairmount Coal Company,	J. M. Brinker,	Fairmount City, Clarion co.
Stephenson & Mitchell,	Thomas Mitchell,	East Brady, Clarion county.
Brady's Bend Mining Company,	C. F. Hartwell,	do. do.
Thomas Laird,	Thomas Laird,	Wheatland, Mercer county.
Addison Davidson,	Addison Davidson,	Beaver Falls, Beaver county.
James Sutherin,	James Sutherin,	Cannelton, Beaver county.
Hoffman Brother,	Peter Hoffman,	Sharon, Mercer county.
Carbon Coal Company,	Adam Perseh, Jr.,	Neshannock, Mercer county.
Snyder Coal Company,	Henry Filer,	do. do.
Tiel & McDowell,		Franklin, Venango county.

A STATEMENT *of the Names, Power, Capacity, and Ventilation of the*
vania, for the Month

NAME OF COLLIERY.	NAME OF OPERATOR.	Character of coal—bituminous or semi-bituminous.	Slope, shaft, or drift.	Pumps—how many.	Number of engines.	Horse power.
Stoneboro',	Mercer Iron and Coal Company,	Bituminous,	Slope,		1	75
Burnett Mine,	Burnett & Co.,	do.	Drift,			
Bellview Mine,	P. Y. Hite,	do.	do.	1	1	10
Wise Shaft,	Snyder Coal Company,	Bitum. block,	Shaft,	2	1	40
Canncllton Mine,	I. F. Mausfield,	Bitum. cannel,	Drift,			
Jackson Coal Miues,	Jackson Coal Company,	Bituminous,	do.			
Pancoast,	Heim, Goodwill & T. Williams,	do.	do.			
Diamond,	Heim & Goodwill,	do.	do.			
Welsh Bank,	Wampum Coal Company,	do.	do.			
Philadelphia Mine,	James Kennedy,	do.	do.			
Hickory Shaft,	Hickory Coal Company,	Bitum. block,	Shaft,	2	1	20
Orangeville Shaft,	Morris Coal Company,	do.	do.	1	2	20 25
Barnes' Mines,	Mercer Mining and Mauuf'g Co.,	Bituminous,	Drift,	2	1	8
Pardoe Mines,	Mercer Mining and Manuf'g Co.,	do.	do.	2		
Fairmouut Mines,	Fairmount Coal Company,	do.	do.			
Fairmount Mines,	Fairmount Coal Company,	do.	do.			
Beaver Mines,	Lee & Patterson,	do.	do.			
Neshannock Mine,	J. Phillips & Co.,	Bitum. block,	Shaft,	1	1	20
Oakland, No. 3,	Oakland Coal Company,	do.	do.	4	1	
Hamilton Mines,	Hamilton Coal Company,	Bituminous,	Drift,			
Oakland, No. 2,	Pierce and Frampton,	Bitum. block,	Shaft,	2	1	
Pine Creek,	Brown & Mosgrove,	Bituminous,	Drift,			
Home Bank, No. 1,	Buhl, Westerman & Co.,	Bitum. block,	Shaft,	1	1	50
Home Bank, No. 2,	Buhl, Westerman & Co.,	do.	do.		1	25
Natrona Mine,	Penn Salt Manufacturiug Co.,	Bituminous,	Drift,	1	1	20
Stewardson Furnace M.,	F. B. & A. Loughlin,	do.	do.			
Mineral Ridge Mine,	T. J. Skidmore,	do.	do.			
Sligo Branch Mine,	Sligo Branch Coal Company,	do.	do.			
Catfish Miue,	Pittsburgh Coal and Mining Co.,	do.	do.			
Lower Hillville,	Pittsburgh Coal and Mining Co.,	do.	do.			
Pacific Slope,	Dunham, Boberts & Co.,	Bitum. block,	Slope,	3	1	40

respective Collieries in the Second Bituminous Mine District of Pennsyl-
of January, 1879.

Boilers—how many.	Number of miners—men.	Number of miners—boys.	Other persons.	Total number of persons.	Number of mules inside.	Number of mules outside.	Total production in tons.	VENTILATION.									
										1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.	
								Number of openings.	Inlet—size of—feet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.
1	135	20	20	175	9	. .	6,004	2	32 sq.	240	7,800	245	7,962	250	8,000	260	8,320
									31	130	4,030	135	4,600	140	4,340	135	4,185
									32	100	2,200	100	2,200	110	2,420	110	2,420
1	15	4	1	20	1	. .	425	2	42	100	4,200	90	3,780	104	4,368	85	3,570
1	83	4	11	98	8	. .	3,346	2	46	169	7,774	185	8,510	187	8,602	191	8,786
									51	147	7,494	153	7,803	140	7,140	150	7,650
5	70	3	5	78	5	. .	3,000	2	42	250	10,500	240	10,080	240	10,080	230	9,660
. .	22	2	3	27	2	1	1,300	2	56	90	5,040	90	5,040	90	5,040	90	5,040
. .	50	4	6	60	4	3	2,088	3	30	322	9,660	306	9,180	292	8,760	287	8,610
. .	21	6	6	33	2	. .	1,481	2	42	108	4,536	120	5,040	115	4,830	120	5,040
. .	30	3	. . .	33	3	. .	2,300	3	49	160	7,840	165	8,085	162	7,938	158	7,742
. .	28	. .	10	38	3	3	1,250	3	6x7	175	7,350	185	7,770	190	7,980	180	7,560
									5x3	185	2,775	170	2,550	160	2,400	190	2,850
									6x6	180	6,480	190	6,840	185	6,660	160	5,760
. .	19	5	6	30	2	. .	609	2	20	. . .	. . . .	. . .	. . . .	. .	. . .	240	4,800
3	40	3	13	56	3	. .	1,774¾	2	40	. . .	5,700	. . .	5,800	. . .	6,600	. . .	5,400
2	43	14	19	76	3	4	1,748	2	16	370	5,920	375	6,000	380	6,080		
1	83	14	16	113	7	3	4,425	13	30	160	4,800	160	4,800	170	5,100	170	5,100
									36	200	7,200	210	7,560	210	7,560	200	7,200
1	81	16	16	113	6	2	3,700	2	30	300	9,000	320	9,600	330	9,900	330	9,900
. .	71	4	2	77	12	1	4,258⅓	4	36	190	6,840	180	6,480	125	4,500	110	3,960
									36	150	5,400	200	7,200	120	4,320	100	3,600
. .	. . .	. .	. . .	. . .	. .	. .	. . . .	. .	36	170	6,120	160	5,700	125	4,500	110	3,960
									36	220	7,920	200	7,200	130	4,680	120	4,320
. .	94	14	23	131	8	5	4,093⅔	2	5½x6	275	9,075	280	9,240	300	9,900	275	9,075
4	40	. .	12	52	2	. .	1,683	1	12x8	130	7,800	120	7,200	130	7,800	115	6,900
4	30	4	3	37	2	. .	1,928⅓	1	5′4″ x 3′7″	. . .	. . . .	. . .	. . .	170	3,172	160	2,985
. .	28	. .	8	36	1	1	1,000	3	48	200	9,600	190	9,120	198	9,504	185	8,880
2	57	5	9	71	3	. .	1,844	2	. . .	220	8,836	250	10,155	230	10,053	210	8,579
. .	18	7	. . .	25	4	3	*36,000	3	35	100	3,500	100	3,500	100	3,500	100	3,500
5	58	15	7	80	4	. .	3,000	2	5½x8	300	11,550	280	10,780	300	11,550	280	10,780
2	8	. .	6	14	1	. .	300	1	5x9	150	6,750	155	6,975	145	6,525	140	6,300
1	33	6	10	49	9	1	*77,100	4	108	96	7,668	112	12,096	110	11,880	80	8,640
. .	15	11	17	43	8	. .	2,157	2	24	240	5,760	220	5,280	228	5,472	216	5,184
.	125	20	15	160	8	1	3,961	3	7x5	100	3,500	100	3,500	86	3,010	90	3,150
									7x7	250	12,250	230	11,270	200	9,800	220	10,780
									5x5	300	7,500	250	6,250	300	7,500	275	6,875
. .	30	. .	7	37	2	. .	1,026	2	6x7	87	3,654	78	3,276	74	3,108	68	2,856
									6x7	68	2,856	58	2,436	62	2,604	86	3,612
. .	70	25	10	105	6	. .	3,184	2	7x5	375	. . . .	200	. . . .	250	. . . .	210	
									7x5	300	. . . .	250	. . . .	160	. . . .	150	
. .	54	4	3	61	3	. .	1,767	2	7½x6	200	. . .	160	. . . .	225	. . .	150	
2	40	16	23	79	4	. .	2,516⅔	3	. . .	400	10,720	365	8,379	375	8,719	380	8,835

* Bushels.

A STATEMENT *of the Names, Power, Capacity, and Ventilation of the respective*

NAME OF COLLIERY.	VENTILATION.									
			1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.	
	Average velocity of air current per month at inlet.	Number of heading.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current per minute at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.
Stoneboro',		4	310	5,580	320	5,760	315	5,670	320	5,760
			220	4,400	200	4,000	225	4,500	220	4,400
			100	2,400	100	2,400	115	2,760	115	2,760
			200	4,000	210	4,200	220	4,400	220	4,400
Burnett Mine,		2	97	4,074	88	3,696	100	4,200	83	3,486
Bellview Mine,		2	122	6,200	128	6,400	124	6,200	119	5,950
			156	6,884	137	5,028	140	6,160	172	7,568
Wise Shaft,		2	300	5,250	280	4,900	280	4,900	250	4,375
			280	5,040	260	4,680	260	4,680	210	3,780
Cannelton Mine,			700	4,200	700	4,200	700	4,200	700	4,200
Jackson Coal Mines,		4	450	6,750	442	6,630	410	6,150	395	5,925
Pancoast,		5	88	3,960	100	4,500	95	4,275	100	4,500
Diamond,		2	120	3,600	123	3,690	123	3,690	120	3,600
Welsh Bank,		3	190	10,640	195	10,920	180	10,080	165	9,240
Philadelphia Mine,		2								
Hickory Shaft,		2		5,200		5,000		5,600		5,800
Orangeville Shaft,		1	190	3,800	195	3,900	195	3,900		
Barnes' Mines,		3								
Pardoe Mines,		2	80	2,400	80	2,400	90	2,700	80	2,400
Fairmount Mines,		4	200	5,000	190	4,750	190	4,750	125	3,125
			180	4,500	260	6,500	125	3,125	110	2,750
Fairmount Mines,			200	5,000	180	4,500	170	4,250	133	3,325
			310	7,750	300	7,500	200	5,000	120	3,000
Beaver Mines,			110	2,941	110	2,941	130	3,476	120	3,250
Neshannock Mine,		4	240	4,800	260	5,200	270	5,720	250	5,000
Oakland, No. 3,										
Hamilton Mines,		1	192	9,216	185	8,880	190	9,120	180	8,640
Oakland, No. 2,		3	380	4,275	350	3,937	270	3,240	370	4,162
			250	3,000	200	2,400	400	4,500	265	3,180
Pine Creek,		6								
Home Bank, No. 1,			220	8,800	215	8,600	220	8,800	225	9,000
Home Bank, No. 2,			310	6,200	315	6,300	320	6,400	310	6,200
Natrona Mine,		3								
Stewardson Furnace Mine,		1	140	6,300	120	5,400	125	5,625	100	4,500
Mineral Ridge Mine,		4	200	7,000	230	8,050	200	7,000	200	7,000
			100	3,500	150	5,250	150	5,250	100	3,500
			166	5,810	250	7,750	150	5,250	166	5,810
			300	10,500	300	10,500	200	7,000	300	10,500
Sligo Branch Mine,										
Catfish Mine,		2	300		180		220		200	
			250		220		140		140	
Lower Hillville,		1	180		140		200		130	
Pacific Slope,		4	75	2,625	80	2,800	70	2,450	75	2,625

Collieries in the Second Bituminous Mine District of Pennsylvania—Continued.

VENTILATION.											
		1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.			
Average velocity per minute for the month.	Outlet—size of—feet.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Average number of feet passing out per month.	LOCATION.
. . . .	21 sq.	400	8,400	380	7,980	400	8,400	390	8,198	. . . .	Mercer county.
	17 sq.	330	5,610	320	5,440	330	5,610	340	5,780		
. . . .	30 sq.	130	3,900	125	3,750	142	4,220	120	3,600	. . . .	Butler county.
. . . .	59 sq.	327	20,293	384	22,650	350	19,470	401	23,659	. . . .	Allegheny county.
. . . .	7x 3⅛	480	11,760	460	10,270	460	10,270	430	10,535	. . . .	Mercer county.
. . . .	9	550	4,950	550	4,950	550	4,950	550	4,950	. . . .	Beaver county.
. . . .	20	475	9,500	460	9,200	416	8,320	430	8,600	. . . .	Mercer county.
. . . .	8½x 9	48	4,578	65	4,940	67	5,092	67	5,092	. . . .	Jefferson county.
. . . .	25	130	3,250	136	3,400	136	3,400	130	3,250	. . . .	do.
. . . .	36	270	9,720	295	10,620	280	10,080	275	9,900	. . . .	Lawrence county.
. . . .	12	. . .	. .	. . .	. .	. . .	. .	350	4,200	. . . .	Venango county.
. . . .	32	. . .	6,500	. . .	6,400	. . .	6,800	. . .	6,600	. . . .	Mercer county.
. . . .	4x 4	350	5,600	330	5,760	365	5,840	. . .	. . . .	. . . .	do.
. . . .	. . .	. . .	. .	. . .	. .	. . .	. .	. . .	. . . .	. . . .	Butler county.
. . . .	30	400	12,000	420	12,600	420	12,600	410	12,300	. . . .	Mercer county.
. . . .	25	200	5,000	190	4,750	190	4,750	125	3,125	. . . .	Clarion county.
	25	180	4 550	260	6,500	125	3,125	110	2.750		
. . . .	25	200	5,000	180	4,500	170	4,250	133	3,325		
	25	310	7,750	300	7,500	200	5,000	120	3,000		
. . . .	3⅝x 5½	700	12,950	710	13,135	710	13,135	725	13,412	. . . .	Lawrence county.
. . . .	. . .	320	6,384	310	6,360	330	6,680	300	6 200	. . . .	Mercer county.
. . . .	5′ 2″ x 3′ 8″	. . .	. . . .	. . .	. . . .	200	3,788	175	3,314	. . . .	do.
. . . .	25	400	10,000	385	9,625	425	10,625	380	9,500	. . . .	Jefferson county.
. . . .	. . .	225	9,834	250	10,928	230	10,083	200	8,758	. . . .	Mercer county.
. . . .	16	100	1,600		. . . .	. .	. . . .	.	. . . .	. . . .	Armstrong county.
. . . .	5x 8	250	10,000	240	9,600	250	10,000	260	10,400	. . . .	Mercer county.
. . .	5x 7	170	5,950	175	6,125	165	5,775	160	5,600	. . . .	do.
. . . .	75	210	15,750	93	6,975	80	6,000	65	4,875	. . . .	Allegheny county.
. . .	20	244	4,880	224	4,480	232	4,640	224	4,480	. . . .	Armstrong county.
. . .	5x 5	600	1,500	500	12,500	500	12,500	400	10,000	. . .	Clarion county.
. . . .	4x 6	120	2,800	150	3,600	150	3,600	100	2,400	. . . .	do.
. . . .	6x 7	87	3,654	78	3,276	74	2,108	68	2,856	. . . .	do.
	4x 6	140	3,360	156	3,744	168	4,032	144	3,456		
. . . .	7x 5	300	. . . .	150	. . .	150	. . . .	125	. . . .	. . . .	do.
	7x 5	210		140		130		130			
. . . .	7x 5	325	. . . .	225	.	375	. . . .	210	. . . .	. . . .	do.
. . . .	4½x 5	365	7,908	325	7,042	335	7,672	345	7,475	. . . .	Mercer county.

A STATEMENT *of the Names, Power, Capacity, and Ventilation of the*
vania, for the Month

NAME OF COLLIERY.	NAME OF OPERATOR.	Character of coal—bituminous or semi-bituminous.	Slope, shaft, or drift.	Pumps—how many.	Number of engines.	Horse power.
Belleview Mine,	P. Y. Hite,	Bituminous,	Drift,	1	1	10
Hite, No. 2,	P. Y. Hite,	do.	do.			
Pancoast Mine,	Heim, Goodwill & F. Williams,	do.	do.			
Beaver Mine,	Lee & Patterson,	do.	do.			
Mineral Ridge Mine,	T. J. Skidmore,	do.	do.			
Natrona Mine,	Penn Salt Manufacturing Co.,	do.	do.	1	1	20
Stewardson Furnace M.,	F. B. & A. Loughlin,	do.	do.			
Orangeville Shaft,	Morris Coal Company,	Bitum. block,	Shaft,		2	20 25
Wise Shaft,	Snyder Coal Company,	do.	do.	2	1	40
Stoneboro' Mine,	Mercer Iron and Coal Company,	Bituminous,	Slope,		1	75
Catfish Mine,	Pittsburgh Coal and Mining Co.,	do.	Drift,			
Lower Hillville,	Pittsburgh Coal and Mining Co.,	do.	do.			
Fairmount Mine,	Fairmount Coal Company,	do.	do.			
Fairmount Mine,	Fairmount Coal Company,	do.	do.			
Diamond Coal Mine,	Diamond Coal Company,	do.	do.			
Hamilton Coal Mine,	Hamilton Coal Company,	do.	do.			
Jackson Coal Mine,	Jackson Coal Company,	do.	do.			
Neshannock, No. 2,	J. Phillips & Co.,	Bitum. block,	Shaft,	1	1	20
Philadelphia Mine,	James Kennedy,	Bituminous,	Drift,			
Burnett Bank,	A. Burnette,	do.	do.	1		
Pine Creek Furnace M.,	Brown & Mosgrove,	do.	do.			
Home Bank, No. 1,	Buhl, Westerman & Co.,	Bitum. block,	Shaft,	1	1	50
Home Bank, No. 2,	Buhl, Westerman & Co.,	do.	do.	2	1	25
Sligo Branch Mine,	Sligo Branch Coal Company,	Bituminous,	Drift,			
Oakland, No. 2,	Pierce & Frampton,	Bitum. block,	Shaft,	2	1	
Oakland, No. 3,	Pierce & Scott,	do.	do.	2	1	
Washington Mine,	Frank Williams,	Bituminous,	Drift,			
Pacific Slope Mine,	Dunham, Roberts & Co.,	Bitum. block,	Slope,	3	1	40
Baker Bank,	D. C. Benham,	Bituminous,	Drift,			
Bethel, No. 2,	Curtis & Boyce,	Bitum. block,	Shaft,	2	1	35
Maple Grove Mine,	S. P. McCalmont,	Bituminous,	Drift,			
Cannelton Mine,	I. F. Mansfield,	Bitum. cannel,	do.			
Pardoe Mine,	Mercer Mining and Manuf'g Co.,	Bituminous,	do.			
Barnes' Mine,	Mercer Mining and Manuf'g Co.,	do.	do.			
Wampum Furnace Mine,	Wampum Coal Company,	do.	do.			
Red Bank Colliery,	William Welsh,	do.	do.			

respective Collieries in the Second Bituminous District of Pennsyl-
of February, 1879.

Boilers—how many.	Number of miners—men.	Number of miners—boys.	Other persons.	Total number of persons.	Number of mules inside.	Number of mules outside.	Total production in tons.	VENTILATION.									
										1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.	
								Number of openings.	Inlet—size of—feet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.
1	40	2	8	50	5	. .	2,512	2	46	201	9,246	244	11,224	187	8,602		
									51	111	6,661	140	7,140	154	8,109		
. .	33	2	5	40	3	1	. . . .	2									
. .	25	8	6	39	2	. .	2,223	3	6x7	120	5,040	120	5,040	108	4,536	115	4,830
. .	93	20	20	133	8	5	2,692	2	5¼x6	200	9,900	275	9,075	275	9,075	280	9,240
. .	120	12	10	142	7	1	5,000	3	7x7	150	7,450	150	7,450	150	7,450	200	9,800
									5x5	180	4,500	250	6,250	190	3,750	190	3,750
									7x5	160	5,600	100	3,500	100	3,500	100	3,000
1	34	5	10	49	9	1	*69,100	4	103	90	9,720	65	7,020	30	3,240	60	6,489
. .	16	11	17	44	8	. .	1,518	2	24	188	4,512	204	4,895	224	5,376	164	3,936
2	40	12	20	72	3	4	1,823	2	4x4	365	5,840	370	3,920	375	6,000	365	5,840
5	70	2	3	75	4	. .	1,000	2	7x6	260	10,920	250	10,500	265	11,130	260	10,920
1	120	28	28	176	10	. .	5,340	3	3⅛	248	7,936	250	8,125	245	8,062	265	8,612
									31	200	6,200	190	5,890	195	6,045	200	6,200
									22	100	2,000	110	2,420	105	2,310	120	2,040
. .	75	25	10	110	5	. .	3,030	2	7x5	375	. . . .	300	. . .	425	. . . .	200	
									7x5	250		250		300		160	
. .	56	3	4	63	3	. .	1,657	2	7⅛x6	2·0	.	250	. . .	165	. . . .	300	
. .	71	5	2	78	10	1	4,285¼	5	36	400	14,400	400	14,400	190	6,840	400	14,400
									36	200	7,200	75	2 700	110	3,960	200	7,200
. .	. . .	. .	. . .	. . .	. .	. .	. . . .	. .	36	250	9,000	100	3,600	120	4,320	200	7,200
									36	100	3,600	90	3,240	105	4,780	110	3,960
									36	300	10,800	333	11,988	290	10,440	300	10,800
. .	30	4	. . .	34	4	.	1,400	3	7x7	150	7,350	140	6,860	145	7,105	145	4,105
. .	35	. .	10	45	2	1	1,800	3	54	200	10,800	200	10,800	185	9,990	190	10,280
. .	54	4	6	64	4	2	1,500	3	5′ 6″ x 5′ 6″	292	9,052	322	9,982	301	9,331	285	8,835
4	39	. .	12	51	2	. .	1,000	. .	5x12	120	7,200	115	6,900	118	7,080	125	7,500
. .	15	7	5	27	4	. .	603	2	4x5	. . .	. . .	. . .	. . .	. .	. . .	120	2,400
1	16	4	1	21	1	. .	375	2	6¼x6½	90	3 780	95	3,990	87	3,654	80	3,360
. .	17	7	. . .	24	4	3	*36,000	3	35	100	3,500						
5	12	4	4	20	1	. .	784	2	5½x7	300	11,550	280	10,780	250	9,625	280	10,780
. .	50	13	7	70	4	. .	3,200	1	5x9	155	6,975	160	7,200	145	6,525	140	6,300
. .	42		11	53	3	. .	1,412	2	6x7	87	3,654	97	4,174	77	3,234	110	4,620
									6x7	67	2,8·4	52	2,184	47	1,974	42	1,764
2	45	4	10	59	3	. .	1,806	2	5x5	255	11,250	400	10,000	600	15,600	380	9,500
4	35	2	9	46	2	. .	834										
. .	14		5	19	2	. .	1,673	2	6x7	120	5,040	120	5,040	115	4,830	120	5,040
2	40	16	23	79	4	. .	2,512⅛	3	3 10 x 7 0	400	10,720	365	8,231	360	8,160	375	8,451
. .	80	20	16	116	8	. .	3,000	2	6x7	250	10,500	250	10,500	250	10,500	259	10,500
3	54	12	11	77	3	. .	1,400	2	4x5	210	4,200	210	4,200	210	4,200	210	4,200
. .	23	7	4	34	2	2	571½										
. .	20	2	4	26	2	1	1,000	2	7x8	90	5,040	90	5,040	90	5,040	90	5,040
. .	82	18	18	118	6	3	3,600	. .	. . .	. . .	30,000	. . .	. . .	. . .	. . . .	. . .	30,000
. .	88	16	20	124	7	3	4,600										
. .	45	5	6	56	5	3	3,000	3	6x7	185	7,770	195	8,190	180	7,560	200	8,400
									5x3	190	2,850	185	2,775	200	3,000	170	2,550
									6x6	200	7,200	190	6,840	195	7,020	185	6,660
. .	27	4	. .	31	1	1	912	2	45	75	3,375	65	2,925	125	5,625	75	3,375

* Bushels.

A STATEMENT *of the Names, Power, Capacity, and Ventilation in the respective*

NAME OF COLLIERY.	VENTILATION.									
			1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.	
	Average velocity of air current per month at inlet.	Number of headings.	Velocity of air current at or near face of heading	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current per minute at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.
Belleview Mine,			102	5,100	105	5,500	123	6,150		
			182	8,008	153	6,732	140	6,160		
Hite, No. 2,										
Pancoast Mine,		6	100	4,500	100	4,500	88	3,960	95	4,275
Beaver Mine,			120	3,476	110	2,941	110	2,941	120	3,250
Mineral Ridge Mine,		4	170	5,950	250	8,750	150	5,250	170	5,950
			150	5,200	150	5,250	150	5,250	150	5,250
			100	3,500	250	8,750	125	4,875	125	4,375
			200	7,500	150	5,250	200	7,500	200	7,500
Natrona Mine,		3								
Stewardson Furnace Mine,		1	100	4,500	125	5,625	125	5,625	96	4,320
Orangeville Shaft,		1	205	4,100	210	4,200	2 5	4,300	205	4,100
Wise Shaft,			260	4,550	280	4,900	300	5,250	250	4,375
			265	4,770	260	4,680	280	5,040	210	3,780
Stoneboro' Mine,		4	300	6,000	355	5,325	345	5,165	350	5,250
			350	5,250	3 0	6,200	300	6,0 0	290	5,800
			100	2,400	95	2,280	100	2,400	110	2,600
			220	4,400	2 0	4,200	200	4,000	200	4,000
Catfish Mine,		2	325		260		400		180	
			225		210		260		140	
Lower Hillville,		1	190		230		140		250	
Fairmount Mine,		5	300	7,500	300	7,500	180	4,500	200	5,000
			150	3,750	110	2,750	110	2,750	150	3,750
Fairmount Mine,			200	5,000	105	2,625	135	2,875	195	4,875
			95	2,375	95	2,050	95	2,375	110	2,750
			240	6,000	250	6,250	255	6,375	220	5,500
Diamond Coal Mine,		2	120	3,600	125	3,750	129	3,870	130	3,900
Hamilton Coal Mine,		3	170	9,350	170	9,350	155	8,525	160	8,800
Jackson Coal Mine,		6	450	7,200	447	6,992	440	7,040	445	7,120
Neshannock. No. 2,		4	290	5,720	260	5,200	250	5,000	270	5,720
Philadelphia Mine,		2								
Burnett Bank,		2	89	3,738	94	3,948	85	3,770	80	3,360
Pine Creek Furnace Mine,		6								
Home Bank, No. 1,			220	8,800	210	8,400	200	8,000	225	9,000
Home Bank, No. 2,			315	6,300	325	6,500	320	6,400	310	6,200
Sligo Branch Mine,										
Oakland, No. 2,			425	4,675	350	3,850	270	3,191	400	4,400
			200	2,400	225	2,700	140	1,346	195	2,340
Oakland, No. 3,		2								
Washington Mine,		3	100	4,200	100	4,200	95	3,990	100	4,200
Pacific Slope Mine,		4	70	2,450	80	2,800	70	2,625	60	2,100
Baker Bank,		2	200	7,200	200	7,200	200	7,200	200	7,200
Bethel, No. 2,		1	250	2,000	250	2,000	250	2,000	250	2,000
Maple Grove Mine,										
Cannelton Mine,		1	700	4,200	700	4,200	700	4,200	700	4,200
Pardoe Mine,										
Barnes' Mine,										
Wampum Furnace Mine,		5	270	15,120	265	14,840	260	14,560	270	15,120
Red Bank Colliery,		1	80	3,600	70	3,150	100	4,500	75	3,375

Collieries in the Second Bituminous Mine District of Pennsylvania.—Continued.

Average velocity per minute for the month.	Outlet—size of—feet.	VENTILATION. 1ST WEEK. Velocity of air current per minute at outlet.	1ST WEEK. Number of cubic feet per minute passing out	2D WEEK. Velocity of air current per minute at outlet.	2D WEEK. Number of cubic feet per minute passing out.	3D WEEK. Velocity of air current per minute at outlet.	3D WEEK. Number of cubic feet per minute passing out.	4TH WEEK. Velocity of air current per minute at outlet.	4TH WEEK. Number of cubic feet per minute passing out.	Average number of feet passing out per month.	LOCATION.
. . . .	59	374	22,066	368	21,712	417	24,603	. . .	. . . .	. . . .	Allegheny county.
. . . .	. . .	. .	. . . .	. .	. .	. . .	. . . .	. . .	. . . .	. . . .	do.
. . . .	. . .	68	5,192	65	4,960	48	4,578	63	4,820	. . . .	Jefferson county.
. . . .	$3\frac{3}{5}$x$5\frac{1}{8}$	725	13,112	700	12,950	700	12,950	710	13,135	. . .	Lawrence county.
. . . .	5x5	300	7,500	500	12,500	300	7,500	350	8 700	. . . .	Clarion county.
	4x4	150	3,000	200	4,000	175	3,500	250	5,000		
. . . .	75	75	5,625	80	4,500	45	3,225	55	4,125	. . . .	Allegheny county.
. . . .	20	192	3,840	212	4,240	232	4.640	172	3.440	. . . .	Armstrong county.
. . . .	4x4	350	6,500	355	5,680	360	5,760	360	5,600	. . . .	Mercer county.
. . . .	7x$3\frac{1}{3}$	480	11,760	460	11,270	450	10,270	465	11,392	. . . .	do.
. . . .	21	355	7,455	360	7,580	350	7,350	370	7,770	. . . .	do.
	17	360	6,120	390	6,630	380	6,460	375	6,375		
. . . .	7x5	250	. . . .	275	. . . .	300	. . . .	150	. . . .	. . . .	Clarion county.
	7x5	200		225		200		140			
. . . .	7x5	325	. . .	375	. . . .	200	. . . .	425	. . . .	. . . .	do.
. . .	25	300	7,500	300	7,500	180	4,500	209	5,000	. . . .	do.
	25	150	3,750	110	2,750	110	2,750	150	3,750		
. . . .	25	200	5,000	105	2,625	115	2,875	195	3,875	. . . .	do.
	25	95	2,375	90	2,250	95	2,375	110	2,750		
	25	240	6,000	250	6,250	255	6,375	220	5,500		
. . . .	5x5	100	2,500	112	2,800	115	2,875	100	2,500	. . . .	Jefferson county.
. . . .	25	450	12,225	450	12,225	435	10.875	440	11,000	. . . .	do.
. . . .	5x4	473	9 460	470	9,400	462	9,240	453	9,060	. . . .	Mercer county.
. . . .	. . .	330	6,880	310	6,360	320	6,384	315	6,505	. . . .	do.
. . . .	3x4	.	.	.	.	. .		340	4.080	. . . .	Venango county.
. . . .	5x6	133	3,990	133	3,990	122	3,640	112	3,360	. . . .	Butler county.
. . . .	16	100	1,600	. . .	.		. .	. . .	.	. . . .	Armstrong county.
. . . .	5x8	250	10,000	240	9.000	220	8.800	200	8,000	. . . .	Mercer county.
. . . .	5x7	175	6,125	180	6,360	165	5,775	168	5,600	. . . .	do.
. . . .	6x7	87	3,654	97	4,174	77	3,234	110	4,620	. . . .	Clarion county.
	4x6	110	2,640	125	3,100	140	3,360	160	3,849	. . . .	
. . . .	8′.′′	255	11,163	200	8,756	150	6,567	225	9,851	. . . .	Mercer county.
. . . .	x 5′										
. . . .	. . .	160	3,465	. . .	. . . .	. .	. . . .	155	3,557	. . . .	do.
		300	5,100					400	8,400		
. . . .	6x7	120	5,040	120	5,040	115	4,830	120	5,040	. . . .	Jefferson county.
. . . .	4′ 4′′ x 5′0′′	365	7,908	345	7,475	350	7,583	355	7,691	. . . .	Mercer county.
. . . .	6x6	450	16,200	450	16,200	450	16,200	450	16,200	. . . .	Beaver county.
. . . .	$2\frac{1}{2}$x4	320	3,200	320	3,200	320	3,200	320	3,200	. . . .	Mercer county.
. . . .										. . . .	Venango county.
. . . .	3x3	550	4,950	450	4,950	550	4,950	550	4,950	. . .	Beaver county.
. . . .	. . .	. . .	. . .	. . .	. .	. .	. .	. . .	. . . .	. . . .	Mercer county.
. . . .		.						. . .	. . .	. . . .	Butler county.
. . . .	6x6	360	12,950	345	12,420	360	12,960	355	12,780	. . . .	Lawrence county.
. . . .	45	75	3,375	70	3,150	125	5,625	100	4,500	. . . .	Armstrong county.

A STATEMENT *of the Names, Power, Capacity, and Ventilation of the* *vania, for the Month*

NAME OF COLLIERY.	NAME OF OPERATOR.	Character of coal—bituminous or semi-bituminous.	Slope, shaft, or drift.	Pumps—how many.	Number of engines.	Horse power.
Natrona Mine,	Penn Salt Manufacturing Co.,	Bituminous,	Drift,	1	1	20
Hite, No. 2,	P. Y. Hite,	do.	do.			
Stewardson Furnace M.,	F. B. & A. Loughlin,	do.	do.			
Pine Creek Furnace M.,	Brown & Mosgrove,	do.	do.			
Neshannock, No. 2,	J. Philips & Co.,	Bitum. block,	Shaft,	2	1	20
Wise Shaft,	Snyder Coal Company,	do.	do.	2	1	40
Hickory Mine,	Spearman & Co.,	do.	do.	3	1	20
Fairmount Mine,	Fairmount Coal Company,	Bituminous,	Drift,			
Fairmount Mine,	Fairmount Coal Company,	do.	do.			
Fairmount, No. 4,	Fairmount Coal Company,	do.	do.			
Washington Mine,	Frank Williams,	do.	do.			
Pancoast Mine,	Heim, Goodwill & F. Williams,	do.	do.			
Home Bank, No. 1,	Buhl, Westerman & Co.,	Bitum. block,	Shaft,	1	1	50
Home Bank, No. 2,	Buhl, Westerman & Co.,	do.	do.	1	1	25
Burnette Bank,	A. Burnette,	Bituminous,	Drift,	1		
Jackson Center Mine,	Jackson Coal Company,	do.	do.			
Mineral Ridge,	T. J. Skidmore,	do.	do.			
Catfish Mine,	Pittsburgh Coal and Mining Co.,	do.	do.			
L. Hillville Mine,	Pittsburgh Coal and Mining Co.,	do.	do.			
Stoneboro' Mine,	Mercer Iron and Coal Company,	do.	Slope,		1	75
Pacific Slope,	Denham, Roberts & Co.,	Bitum. block,	do.	3	1	40
Welsh Bank,	Wampum Coal Company,	Bituminous,	Drift,			
Philadelphia Mine,	James Kennedy,	do.	do.			
Diamond Mine,	Diamond Coal Company,	do.	do.			
Pardoe Mines,	Mercer Mining and Manuf'g Co.,	do.	do.	2		
Bethel, No. 2,	Curtis & Boyce,	do.	Shaft,	2	1	35
Sligo Branch Mine,	Sligo Branch Coal Company,	do.	Drift,			
Beaver Mine,	Lee & Patterson,	do.	do.			
Barnes' Mine,	Mercer Mining and Manuf'g Co.,	do.	do.	2	1	8
Davidson Mine,	W. B. Enos & Co.,	do.	do.			
Hamilton Mine,	Hamilton Coal Company,	do.	do.			
Orangeville Shaft,*	Morris Coal Company,	Bitum. block,	Shaft.			
Cannelton Mine,*	I. F. Mansfield,	Bitum. cannel,	Drift.			
Red Bank,	W. Welsh,	Bituminous,	do.			

* Reported not running in March.

respective Collieries in the Second Bituminous Mine District of Pennsyl-
of March, 1879.

Boilers—how many.	Number of miners—men.	Number of miners—boys.	Other persons.	Total number of persons.	Number of mules inside.	Number of mules outside.	Total production in tons.	VENTILATION.								
										1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.	
								Number of openings.	Inlet—size of—feet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.
1	32	6	10	48	9	1	*74,000	4	108	45	4,850	154	16,632	120	12,960	80	8,640
. .	69	3	15	87	6	2	. . . .	2	36	232	8,352	328	13,776	346	14,532	232	9,744
									42	347	14,574	242	8,712	232	8,352	194	6,984
. .	15	9	18	42	7	. .	1,498	2	24	180	4,320	204	4,896	164	3,936	200	4,800
. .	16	7	. . .	23	4	3	*36,000	3	35	100	3,500						
4	40	. .	8	48	2	. .	1,000	. .	5x12	120	7,200	105	6,300	115	6,900	110	6,600
5	70	5	5	80	4	. .	1,000	2	7x6	262	11,004	265	11,130	270	11,340	274	11,508
3	36	6	13	55	3	. .	664⅓	2	5x8	. . .	5,600	. . .	5,800	. . .	5,700	. . .	6,000
. .	71	4	12	87	10	1	5,415⅔	5	36	300	10,800	333	11,988	333	11,988	233	8,388
									36	333	11,983	250	9,000	300	10,800	250	9,000
. .	. . .	. .	. . .	. . .	. .	. .	. . . .	. .	36	200	7,200	180	6,480	185	6,660	191	6,876
									36	190	6,840	214	7,704	190	6,840	180	6,480
									36	133	4,788	170	6,120	130	4,680	150	5,400
. .	15	1	2	18	2	. .	. . . .	1	25	. . .	. . .	. . .	. . .	. . .	. . . .	100	2,500
. .	18	3	3	24	2	. .	1,699	2	6x7	110	4,620	115	4,830	120	5,040	110	4,620
. .	29	5	5	39	3	. .	3,011	3	6x7	115	4,830	120	5,040	120	5,040	110	4,620
5	45	14	7	66	4	. .	1,650	2	5½x7	320	11,935	. . .	. . . .	. . .	. . . .	280	10,780
2	12	4	4	20	1	. .	459	1	5x9	140	6,300	. . .	. . . .	. . .	. . . .	150	6,750
1	22	6	. . .	28	1	1	736	2	6½x6½	60	2,520	75	3,150	80	3,360	65	2,730
. .	38	5	6	49	4	2	1,600	3	5⅛x5⅛	264	8,052	283	8,632	320	9,760	302	9,211
. .	110	10	13	133	7	1	6,169	3	7x7	200	9,800	150	6,350	150	6,350	150	6,350
									5x5	250	6,250	250	6,250	120	3,600	187	4,775
									7x5	100	3,500	100	3,500	150	5,250	100	3,500
. .	75	25	10	110	7	2	3,153	2	7x5	150	. . .	125	. . .	140	. . . .	130	
									7x5	160	. . . .	170	. . . .	120	. . . .	120	
. .	52	3	5	60	3	. .	1,760	2	7x6	210	. . .	160	. . . .	190	. . . .	300	
1	135	20	20	175	10	. .	5,758	3	32½	220	7,150	240	7,800	230	7,475	240	7,800
									25	180	4,500	200	5,000	210	5,250	200	5,000
									22	120	2,640	140	3,080	130	2,860	140	3,080
2	47	12	23	82	4	. .	2,854½	3	4x6	320	7,680	325	7,800	310	8,160	430	10,320
. .	50	. .	17	67	5	3	3,640	3	6x7	160	6,720	165	6,930	160	6,720	165	6,930
									5x3	170	2,550	155	2,325	165	2,475	170	2,550
									6x6	150	5,400	145	5,220	140	5,040	140	5,040
. .	14	5	5	24	2	. .	331	2	4x5	. . .	. . .	. . .	. . .	. . .	. . .	150	3,000
. .	20	3	. . .	23	. .	. .	1,200	3	7x7	160	7,840	155	7,595	160	7,840	165	8,085
1	92	18	20	130	7	3	4,300	2	30	430	12,900	470	14,100	480	14,400	460	13,800
3	50	11	3	64	3	. .	1,480	2	20	240	4,800	240	4,800	230	4 600	240	4,800
. .	40	2	11	53	4	. .	. . . .	2	36	157	5,642	. . .	. . . .	120	4,320	110	3,960
									36	45	1,620	50	1,800	47	1,692	110	3,960
. .	90	18	24	132	8	5	3,436	2	5½x6	300	9,900	275	9,075	280	9,240	260	8,580
1	82	14	22	118	10	4	4,800	12	36	200	7,200						
									26	100	2,600						
									20	250	4,000						
									16								
. .	50	5	15	70	4	2	1,305	3	41								
									15¼								
. .	34	1	10	45	2	1	3,000	3	54	100	5,400	100	5,400	75	4,050	80	4,320
. .	38	3	. . .	41	1	1	1,189	3	45	70	3,150	100	4,500	125	5,625	125	5,625

* Bushels.

A STATEMENT *of the Names, Power, Capacity, and Ventilation of the respecitve*

NAME OF COLLIERY.	VENTILATION.									
			1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.	
	Average velocity of air current per month at inlet.	Number of headings.	Velocity of air current at or near face of heading.	Number of cubic feet p r minute passing at or near face of head'g.	Velocity of air current at or near face of heading	Number of cubic feet per minute passing at or near face of head'g	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.
Natrona Mine,		3								
Hite, No. 2,		4	270	10,800	251	10,040	270	10,800	156	6,240
			156	5,894	173	6.314	161	5,876	105	3,750
			280	10,780	327	12,589	261	10,048	185	7,189
			517	18.095	479	16,765	451	15,785	301	10,535
Stewardson Furnace Mine,		1	100	4,500	125	5.625	96	4,320	125	5,625
Pine Creek Furnace Mine,		6								
Neshannock, No. 2,		3	270	5,720	250	5,1 0	260	5,4 0	255	5,270
Wise Shaft,		2	255	4,590	260	4,680	265	4,770	270	4.860
			260	4.550	270	4,725	275	4,812	280	4,900
Hickory Mine,		2		4,900		5,1 0		5,000		5,200
Fairmount Mine,		5	250	6.250	250	6,250	260	6,500	200	5,000
			260	6.500	110	5,250	270	6.750	250	6.250
Fairmount Mine,			150	3,750	185	4,625	185	4,625	180	4,500
			184	4.5 0	190	4,750	150	3,750	170	4,250
			100	2,750	133	3,325	133	3,3.5	133	3,325
Fairmount. No. 4,		2							90	2,250
Washington Mine,		4	90	4,050	95	4,275	100	4.500	90	4,050
Pancoast Mine.		6	95	4,275	100	4,500	100	4,500	90	4,050
Home Bank, No. 1,			240	9,600					250	10.000
Home Bank. No. 2,			310	6,200					310	6,200
Burnette Bank.		2	68	2,856	72	3,024	70	3,276	65	2,730
Jackson Center Mine,		3	500	6.000	520	6,240	540	6,480	510	6,120
Mineral Ridge,		5	200	7,000	300	10,500	150	5 250	150	5,250
			187	6,545	150	5,250	150	5,250	125	4,375
			150	5,250	125	4,375	125	4,375	100	3,500
			150	5,250	187	6,545	150	5,250	125	4,375
Catfish Mine,		1	140		120		130		120	
			150		160		110		110	
L. Hillville Mine,		1	200		150		175		170	
Stoneboro' Mine,		4	300	4,500	280	4,800	250	4.000	280	4,200
			250	5,000	210	4.200	220	4,400	200	4,000
			300	4,800	250	4,000	250	4,000	250	4,000
			140	3,360	130	3,120	130	3,120	135	3,240
Pacific Slope,		4								
Welsh Bank,			230	12,880	215	12,040	200	11,200	215	12,040
Philadelphia Mine,		2								
Diamond Mine,		3	130	3,900	125	3,750	130	3.900	135	4,050
Pardoe Mines,		3	140	4,200	100	3,000	120	3,600	100	3,000
			80	2.400	70	2,100	60	1,800	60	1,800
Bethel, No. 2,			320	2,560	320	2,560	310	2,480	320	2,560
Sligo Branch Mine,		7								
Beaver Mine,			135	2.430	130	2,340	135	2,430	120	2,160
			135	5,130	130	2,940	135	5.130	120	4,560
			140	2,940	125	2.625	140	2,940	125	2,525
			145	3,045	140	2.940	145	3 945	120	2,730
Barnes' Mine,		3	100	3,000	100	3,000	120	3,600	130	3,900
Davidson Mine,		4								
Hamilton Mine,		2	75	3,750	75	3,750	60	3,000	70	3,500
Orangeville Shaft,										
Cannelton Mine,										
Red Bank,		1	60	2,700	90	4,050	110	4,950	110	4,950

Collieries in the Second Bituminous Mine District of Pennsylvania—Continued.

Ventilation.											
		1st week.		2d week.		3d week.		4th week.			
Average velocity per minute for the month.	Outlet—size of—feet.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Average number of feet passing out per month.	Location.
. . . .	75	100	7,500	320	24,000	300	22,500	80	6,000	. . . .	Allegheny county.
. . . .	60	555	33,300	593	35,580	764	75,840	384	23,040	. . . .	do.
. . . .	20	184	3,680	212	4,240	172	3,440	212	4,240	. . . .	Armstrong county.
. . .	16	100	1,600	. .		. . .	. . . .	.		. . . .	do.
. . . .	. . .	320	6,380	280	5,600	310	6,220	300	6,060	. . . .	Mercer county.
. . . .	7x 3½	460	11,270	470	11,575	475	11,637½	480	11,760	. . . .	do.
. . . .	4x 8	. .	6,100	. . .	6,300	.	6,200	. . .	6,500	. . . .	do.
	25	250	6,250	250	6,250	260	6,500	200	5,000	. . . .	Clarion county.
	25	260	6,500	210	5,250	270	6,750	250	6,250		
	25	150	3,750	185	4,625	185	4,625	180	4,500		
	25	180	4,500	190	4,750	150	3,750	170	4,250		
	25	110	2,750	133	3,325	133	3,325	133	3,325	. . . .	do.
. . . .	. . .	. .	. . .	. . .	. . . .	.	. . . .	90	2,250	. . . .	do.
. . . .	6x 7	110	4,620	115	4,830	120	5,040	110	4,620	. . . .	Jefferson county.
. . . .	8x 9½	63	4,788	66	5,016	67	5,090	60	4,560	. . . .	do.
. . . .	5x 8	260	10,400	. . .	. . . .	. .	. . . .	270	10,800	. . . .	Mercer county.
. . . .	5x 7	160	5,600	. . .	. . . .	. .	. . . .	170	5,950	. . . .	do.
. . . .	4x 5	142	2,840	152	3,033	164	3,282	137	2,744	. . .	Butler county.
. . . .	5x 4	420	8,400	430	8,600	440	8,800	460	9,200	. . . .	Mercer county.
. . . .	5x 5	500	12,500	500	12,500	375	9,375	300	7,500	. . . .	Clarion county.
	5x 4	200	4,000	150	3,000	250	5,000	150	3,000		
. . . .	7x 5	125	. . . .	140	. . . .	110	. . . .	100	. . . .	. . . .	do.
	7x 5	120		120		120		110			
. . . .	7x 5	300	. . .	230	. . . .	250	. . .	225	. . .	. . . .	do.
. . . .	22½	400	9,000	400	9,000	350	7,825	380	8,550	. . . .	Mercer county.
	17	500	8,500	550	9,350	520	8,840	490	8,330		
. . . .	4½ x5	425	9,208	400	8,666	385	8,342	555	12,025	. . . .	do.
. . . .	6x 6	315	11,340	320	11,520	305	10,980	310	11,160	. . . .	Lawrence county.
. . . .	3x 4	. . .	. . . .	. . .	. . . .	. .	. .	380	4,560	. . . .	Venango county.
. . . .	5x 5	110	2,750	110	2,750	112	2,800	116	2,900	. . . .	Jefferson county.
	30	480	14,400	480	14,400	460	13,800	470	14,100	. . .	Mercer county.
. . .	10	310	3,100	310	3,100	300	3,000	310	3,100	. . . .	do.
. . . .	36	157	5,642	105	2,520	150	5,400	100	2,400	. . . .	Clarion county.
. . .	24	161	3 864	. . .	. . . .		3,840	300	7,344		
. . . .	3⅔ x 5½	709	12,950	670	12,395	680	12,580	600	12,025	. . . .	Lawrence county.
. . . .	28	300	8,400	320	8,960	300	8,400	290	8,120	. . . .	Butler county.
	24										
	20										
. . . .	27	. .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	Lawrence county.
. . . .	25	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	Jefferson county.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	Mercer county.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	Beaver county.
. . . .	45	75	3,150	125	5,625	125	5,625	130	5,850	. . . .	Armstrong county.

A STATEMENT *of the Names, Power, Capacity, and Ventilation of the*
vania, for the Month

NAME OF COLLIERY.	NAME OF OPERATOR.	Character of coal—bituminous or semi-bituminous.	Slope, shaft, or drift.	Pumps—how many.	Number of engines.	Horse power.
Jackson Coal Mine,	Jackson Coal Company,	Bituminous,	Drift,			
Neshannock, No. 2,	J. Phillips & Co.,	do.	Shaft,	1	1	20
Coal Center,	John Bell,	do.	do.	1	1	15
Home Bank, No. 1,	Buhl, Westerman & Co.,	Bitum. block,	do.	1	1	50
Home Bank, No. 2,	do.	do.	do.	1	1	25
Fairmount, No. 1,	Fairmount Coal Company,	Bituminous,	Drift,			
Fairmount, No. 1,	do. do.	do.				
Fairmount, No. 4,	do. do.	do.	Drift,			
Stewardson Furn. Mine,	F. B. & A. Laughlin,	do.	do.			
*Diamond Coal Mine,	Diamond Coal Company,	do.	do.			
*Hamilton Coal Mine,	Hamilton Coal Company,	do.	do.			
Stoneboro' Mine,	Mercer Iron and Coal Company,	do.	Slope,		1	75
Natrona Mine,	Penn Salt Manuf'g Company,	do.	Drift,	1	1	20
Pacific Slope,	Dunham, Roberts & Co.,	Bitum. block,	Slope,	3	1	40
Baker Bank,	L. S. Hoyt, for Scott & Co.,	Bituminous,	Drift,			
Sutherin Bank,	James Sutherin,	do.	do.			
*Orangeville Shaft,	Morris Coal Company,	do.	Shaft.			
Welsh Bank,	Wampum Coal Company,	do.	Drift,			
Wise Shaft,	Snyder Coal Company,	Bitum. block,	Shaft,	2	1	40
Hite, No. 2,	P. Y. Hite,	Bituminous,	Drift,			
Lower Hillville Mine,	Pittsburgh Coal and Mining Co.,	do.	do.			
*Catfish Mine,	do. do.	do.	do.			
Pancoast Mine,	Heim, Goodwill & F. Williams,	do.	do.			
Washington Mine,	Frank Williams,	do.	do.			
Davidson Mine,	W. B. Enos & Co.,	do.	do.			
Philadelphia Mine,	James Kennedy,	do.	do.			
Red Bank Colliery,	W. Welsh,	do.				
Hickory Mine,	Spearman & Co.,	Bitum. block,	Shaft,	3	1	20
Cannelton Mine,	I. F. Mansfield,	Bitum. cannel,	Drift,			
Burnette Bank,	Greenville Coal and Coke Co.,	Bituminous,	do.	1		
Barnes' Mine,	Mercer Mining and Manuf'g Co.,	do.	do.	2	1	8
Pardoe Mine,	do. do.	do.	do.	2		
Lee & Patterson Mine,	Lee & Patterson,	do.	do.	2		
Oakland, No. 2,	Pierce, Frampton & Co.,	Bitum. block,	Shaft,	2	1	
Oakland, No. 3,	Oakland Coal Company,	do.	do.	3	1	
Mineral Ridge Mine,	T. J. Skidmore,	Bituminous,	Drift,			

* Reported not running in April.

respeetive Colleries in the Second Bituminous Mine Distriet of Pennsyl-of April, 1879.

Boilers—how many.	Number of miners—men.	Number of miners—boys.	Other persons.	Total number of persons.	Number of mules inside.	Number of mules outside.	Total production in tons.	VENTILATION.									
										1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.	
								Number of openings.	Inlet—size of—feet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.
. .	40	8	5	53	4	2	1,800	3	5½x5½	283	8,632	302	9,211	283	8,632	264	8,052
4	40	. .	9	49	2	1	2,200	1	5x12	70	4,200	65	3.900	72	4,320	68	4,080
1	30	5	3	38	. .	. .	1,150	3	6x7								
5	47	15	7	69	4	. .	4,000	2	5¼x7	300	11,550	280	10,780	250	9,625	280	10,780
2	16	2	4	22	2	. .	826	1	6x9	150	6,750						
. .	70	3	11	84	10	1	4,684	5	36	400	14,400	310	11,160	300	10,800	300	10,800
									36	310	11,160	305	10,980	290	10,440	250	9,000
. .	. . .	. .	. .	. .	. .	. .	. . . .	. .	36	300	10,800	200	7,200	285	10,260	270	9,720
									36	200	7,200	150	5,400	125	4,500	120	4,320
									36	220	7,920	200	7,200	190	5,840	185	6,660
. .	11	2	2	15	2	. .	753¾	2	36	55	1,980	110	3,960	90	3,240	100	3,600
. .	15	9	17	41	8	. .	1,432	2	24	172	4,128	164	3,936	180	4,320	204	4,896
1	110	23	20	153	9	. .	. . . .	2	32¼	220	7,210	240	8,180	230	7,475	235	7,635
									25	200	5,000	210	5,250	195	1,875	205	5,125
									22	120	2,640	190	4,480	180	3,960	125	2,750
1	31	7	10	48	9	1	*71,800	2	108	100	10,800	20	2,160	37	3,996	70	7,560
2	47	12	23	82	4	. .	2,316	3	4x6	460	10,040	440	10,560	450	10,800	360	8,640
. .	65	15	12	92	6	. .	2,041	2	6x6	200	7,200	220	7,920	240	8,640	170	6,120
. .	12	1	. . .	13	1	. .	400	2									
. .	74	. .	17	91	6	3	4,476	3	6x7	190	7,980	180	7,560	175	7,350	180	7,560
									5x3	205	3,075	215	3,225	190	2,850	185	2,775
									6x6	175	6,300	190	6,840	160	5,760	175	6,300
5	75	5	6	86	5	. .	5,000	2	7x6	223	9,366	204	8,568	180	7,560	174	7,308
. .	62	3	16	81	5	2	. . . .	2	42	252	10,584	327	13,734	308	12,936	342	14,364
									36	222	7,992	213	7,668	242	8,712	237	8,532
. .	46	3	1	50	3	. .	1,165	3	7⅛x6	150	6,750	150	6,750	150	6,750	200	9,000
. .	26	7	8	41	3	. .	3,047	3	6x7	110	4,620	120	5,040	110	4,620	115	4,830
. .	18	3	3	24	2	. .	1,812	3	6x7	110	4,620	120	5,040	115	4,830	110	4,620
. .	50	10	14	74	5	2	1,400	3	41	200	8,200	200	8,200	180	7,380	200	8,300
									15½	100	1,575	100	1,575	100	1,575	90	1,417
. .	13	4	5	22	2	. .	392	2	4x5	. . .	. . .	. . .	. . .	. . .	. . .	120	2,400
. .	34	2	. . .	36	1	1	1,248	3	45	90	4,050	110	4,950	100	4,500	105	4,725
3	49	12	16	77	4	. .	2,616	2	5x8	. . .	7,500	. . .	7,300	. . .	7,600	. . .	7,700
. .	30	. .	3	33	1	1	1,000	2	7x8	. . .	. . .	. . .	. . .	. . .	. . .	90	5,040
1	30	4	1	35	1	1	500	2	6x7	70	2,940	74	3,108	65	2,730	90	3,780
1	84	18	20	122	8	3	5,760	14	30	300	9,000	260	7,800	260	7,800	250	7,500
1	83	14	16	113	6	3	4,416	2	30	380	11,400	370	11,100	370	11,100	370	11,100
1	90	15	25	130	8	4	3,800	2	5¼x6	180	5,940	190	6,270	200	6,600	170	5,6 0
									7x3	80	1,680	90	1,890	100	2,100	70	1,470
2	35	4	5	44	3	. .	1,750	2	5′ 5″ x 5′ 6″	220	5,204	230	5,253	190	6,946	230	8,458
4	30	4	4	38	3	. .	. . . .	. .	6′ 0″ x 3′ 9″								
. .	105	17	15	137	7	1	4,410	3	7x7	150	7,350	150	7,350	120	5,880	150	7,350
									5x5	250	6,250	250	6,250	250	6,250	187	4,675
									7x5	100	3,520	100	3,500	300	10,500	120	4,200

* Bushels.

A STATEMENT *of the Names, Power, Capacity, and Ventilation of the respective*

NAME OF COLLIERY.	Average velocity of air current per month at inlet.	Number of headings.	VENTILATION. 1ST WEEK. Velocity of air current at or near face of heading.	1ST WEEK. Number of cubic feet per minute passing at or near face of head'g.	2D WEEK. Velocity of air current at or near face of heading	2D WEEK. Number of cubic feet per minute passing at or near face of head'g.	3D WEEK. Velocity of air current per minute at or near face of heading.	3D WEEK. Number of cubic feet per minute passing at or near face of head'g.	4TH WEEK. Velocity of air current at or near face of heading.	4TH WEEK. Number of cubic feet per minute passing at or near face of head'g.
Jackson Coal Mine,			510	6,120	520	6,240	560	6,720	580	6,960
Johannock, No. 2,		3	138	4,140	128	3,840	140	4,200	130	3,900
Coal Center,		4								
Home Bank, No. 1,			220	8,800	210	8,400	200	8,000	225	9,000
Home Bank, No. 2,			310	6,200						
Fairmount, No. 1,		5	333	8,325	300	7,500	210	5,250	210	5,250
			300	7,500	233	5,825	190	4,750	200	5,000
Fairmount, No. 1,			260	6,500	188	4,500	180	4,500	190	4,750
			185	4,625	133	3,325	110	2,750	105	2,625
			200	5,000	190	4,750	180	4,500	150	3,750
Fairmount, No. 4,		3	35	875	90	2,250	70	1,750	80	2,000
Stewardson Furnace Mine,		1	100	4,500	116	5,220	100	4,500	125	5,625
Diamond Coal Mine,										
Hamilton Coal Mine,										
Stoneboro' Mine,		2	200	3,200	200	3,200	195	3,070	200	3,200
			200	4,000	200	4,000	190	3,800	195	3,900
			150	2,400	150	2,400	180	2,880	160	2,560
			130	3,120	130	3,120	140	3,360	140	3,360
Natrona Mine,		3								
Pacific Slope,		4								
Baker Bank,		5		3,500		4,000		4,600		3,000
Sutherin Bank,		1								
Orangeville Shaft,										
Welsh Bank,		3	250	14,000	280	15,680	245	13,720	230	12,880
Wise Shaft,		2	200	2,800	180	2,520	175	2,450	150	2,100
			230	4,830	220	4,620	210	4,410	200	4,200
Hite, No. 2,		5	190	7,600	251	10,040	228	9,120	252	10,080
			118	4,327	133	4,854	232	5,800	247	6,175
			261	1,148	346	13,211	270	6,750	230	5,750
			484	16,940	612	21,420	479	18,441	408	15,708
Lower Hillville Mine,										
Catfish Mine,										
Pancoast Mine,		5	90	4,050	100	4,500	90	4,050	95	4,275
Washington Mine,		5	90	4,050	100	4,500	95	4,215	90	4,050
Davidson Mine,		3	100	2,750	100	2,750	100	2,750	100	2,750
			70	1,050	70	1,050	70	1,050	70	1,050
			50	1,650	50	1,600	50	1,650	50	1,650
Philadelphia Mine,		2								
Red Bank Colliery,			95	4,275	100	4,500	90	4,050	100	4,500
Hickory Mine,		2		6,500		6,400		6,600		6,300
Cannelton Mine,		1							700	4,200
Burnette Bank,		2	78	3,024	76	3,040	67	2,680	92	3,680
Barnes' Mine,		4								
Pardoe Mine,		4								
Lee & Patterson Mine,			100	2,100	120	2,520	130	2,730	90	1,890
			350	7,350	370	7,770	390	8,190	330	6,930
			230	4,140	250	4,500	260	4,680	220	3,960
Oakland, No. 2,		2	102	2,200	90	1,987	160	2,613	110	2,428
			350	3,787	280	3,270	320	3,000	360	3,791
Oakland, No. 3,		2								
Mineral Ridge Mine,		6	200	7,500	150	5,250	200	7,500	100	3,500
			150	5,250	150	5,250	187	6,545	100	3,500
			125	4,375	187	6,545	150	5,250	125	4,375
			125	4,375	187	6,545	150	5,250	150	5,250
			150	5,250	150	5,250	75	2,520	100	3,500
			150	5,250	200	7,500	200	7,500	300	10,500

Collieries in the Second Bituminous Mine District of Pennsylvania—Continued.

Ventilation.											
		1st week.		2d week.		3d week.		4th week.			
Average velocity per minute for the month	Outlet—size of—feet.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Average number of feet passing out per month.	Location.
. . . .	5x 4	470	9,400	440	8,800	420	8,400	460	9,200	. . . .	Mercer county.
. . . .	. . .	214	4,160	210	3,830	216	4,222	211	3,900	. . . .	do.
. . . .	6x 7	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	Lawrence county.
. . . .	5x 8	250	10,000	240	9,600	220	8,800	260	10,400	. . . .	Mercer county.
. . . .	5x 7	170	5,950	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	do.
. . . .	25	333	8,325	300	7,500	210	5,250	210	5,250	. . . .	Clarion county.
	25	300	7,500	233	5,825	190	4,750	200	5,000		
. . . .	25	260	6,500	180	4,500	180	4,500	190	4,750		
	25	185	4,625	133	3,325	110	2,750	105	2,625		
	25	200	5,000	190	4,750	180	4,500	150	3,750		
. . . .	25	35	875	90	2,250	70	1,750	80	2,000		do.
. . .	20	184	3,680	172	3,440	192	3,840	212	4,240	. . .	Armstrong county.
. . . .	. . .	. . .	. .	. . .	. . .	. . .	. . . .	. . .	. . . .	. . . .	Jefferson county.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	do.
. . . .	$22\frac{1}{2}$	350	7,850	370	8,140	360	8,100	355	7,987	. . . .	Mercer county.
	17	480	8,160	460	7,920	470	7,990	490	8,260		
. . . .	75	120	9,000	80	6,000	40	3,000	100	7,500	. . . .	Allegheny county.
. . . .	$4\frac{1}{3}$x 5	480	10,400	520	11,266	370	8,016	370	8,016	. . .	Mercer county.
. . . .	5x 6	300	9,000	320	9,600	350	10,500	240	7,200	. . . .	Beaver county.
. . .	. .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	do.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	Mercer county.
. . . .	6x 6	335	12,060	345	12,420	315	11,340	290	10,440	. . . .	Lawrence county.
. . . .	7x $3\frac{5}{8}$	460	11,270	430	10,535	375	9,187$\frac{1}{2}$	355	8,942	. . . .	Mercer county.
. . . .	60	584	35,040	669	40,140	612	36,720	621	37,260	. . . .	Allegheny county.
. . . .	7x 5	300	10,500	300	10,500	250	8,750	300	10,500	. . . .	Clarion county.
. . . .	. . .	. . .	. . .	. .	. .	. . .	. . . .	. . .	. .	. . .	do.
. . . .	$8\frac{1}{2}$x 9	60	4,560	67	5,092	60	4,560	65	4,910	. . .	Jefferson county.
. . . .	6x 7	110	4,620	120	5,040	115	4,830	110	4,620	. . . .	do.
. . . .	27	190	5,130	190	5,130	190	5,130	190	5,130	. . . .	Lawrence county.
. . . .	3x 4	. . .	. . . .	. . .	. . . .	.	. . . .	320	3,840	. . . .	Venango county.
. . . .	45	100	4,500	110	4,950	100	4,500	105	4,725	. . . .	Armstrong county.
. . . .	4x 8	. . .	7,900	. . .	7,700	. . .	7,800	. . .	7,600	. . . .	Mercer county.
. . . .	6x 6	. . .	. . . .	. . .	. . . .	. . .	. . . .	130	4,680	. . . .	Beaver county.
. . . .	4x 5	152	3,040	150	3,040	134	2,680	184	3,680	. . . .	Butler county.
. . . .	30	400	12,000	400	12,000	370	11,100	370	11,100	. . . .	do.
. . . .	36	400	14,400	365	13,140	365	13,140	360	12,960	. . . .	Mercer county.
. . . .	$5\frac{1}{2}$x 7	700	26,600	720	27,360	740	28,120	680	25,840	. . .	Lawrence county.
. . . .	5′ 5″ x 8′ 1″	150	6,588	160	7,027	170	7,466	200	8,784	. . . .	Mercer county.
. . . .	. . .	. . .	. . . .	. .	. . . .	. . .	. .	. . .	. . . .	. . . .	do.
. . . .	5x 5	500	12,500	375	9,175	375	9,375	300	7,500	. . . .	Clarion county.
	5x 4	150	3,000	200	4,000	175	3,500	200	4,000		

A STATEMENT *of the Names, Power Capacity, and Ventilation of the vania, for the Month*

NAME OF COLLIERY.	NAME OF OPERATOR.	Character of coal bituminous or semi-bituminous.	Slope, shaft, or drift.	Pumps—how many.	Number of engines.	Horse power.
Hite, No. 2,	P. Y. Hite,	Bituminous,	Drift,			
Natrona Mine,	Penn Salt Manufacturing Co.,	do.	do.	1	1	20
Wise Shaft,	Snyder Coal Company,	Bitum. block,	Shaft,	2	1	40
Hickory Mine,	Spearman & Co.,	do.	do.	3	1	20
Clinton Mine,	Clinton Coal Company,	Bituminous,	Drift,			
Catfish Mine,	Pittsburgh Coal and Mining Co.,	do.	do.			
Lower Hillville Mine,	Pittsburgh Coal and Mining Co.,	do.	do.			
Orangeville Shaft,	Morris Coal Company,	Bitum. block,	Shaft,	2	2	20 25
Neshannock, No. 2,	J. Phillips & Co.,	do.	do.	1	1	20
Coal Center,	John Bell,	Bituminous,	do.	1	1	15
Welsh Bank,	Wampum Coal Company,	do.	Drift,			
Baker Bank,		do.	do.			
Stoneboro' Mine,	Mercer Iron and Coal Company,	do.	Slope,		1	75
Reimerton Mine,	J. McCollum,	do.	Drift,			
Stewardson Fur'ce Mine,	F. B. & A. Laughlin,	do.	do.			
Fairmount, No. 1,	Fairmount Coal Company,	do.	do.			
Fairmout, No. 4,	Fairmount Coal Company,	do.	do.			
Washiugton Mine,	Frank Williams,	do.	do.			
Pancoast mine,	Heim, Goodwill & F. Williams,	do.	do.			
Sligo Branch Mine,	Sligo Branch Coal Company,	do.	do.			
Pacific Slope Mine,	Dunham, Roberts & Co.,	Bitum. block,	Slope,	3	1	40
Home Bank, No. 1,	Buhl, Westerman & Co.,	do. do.	Shaft,			
Home Bank, No. 2,	Buhl, Westerman & Co.,	do. do.	do.			
Canuelton Mine,	I. F. Mansfield,	Bitum. cannel,	Drift,			
Oakland, No. 2,	Pierce & Frampton,	Bitum. block,	Shaft,	2	1	
Oakland, No. 3,	Pierce & Scott,	do. do.	do.	2	1	
* Diamond Mine,	Diamond Coal Company,	Bituminous,	Drift.			
Pardoe Mine,	Mercer Mining and Manuf'g Co.,	do.	do.			
Barnes' Mine,	Mercer Mining and Manuf'g Co.,	do.	do.			
Burnette Mine,	A. Burnett & Co.,	do.	do.	1		
Maple Grove Mine,	S. P. McCalmont,	do.	do.			
Davidson Mine,	W. B. Enos & Co.,	do.	do.			
Jackson Center Mine,	Jackson Center Coal Company,	do.	do.			
Philadelphia Mine,	James Kennedy,	do.	do.			

* Reported not running in month of May.

respective Collieries in the Second Bituminous Mine District of Pennsyl-of May, 1879.

Boilers—how many.	Number of miners—men.	Number of miners—boys.	Other persons.	Total number of persons.	Number of mules inside.	Number of mules outside.	Total production in tons.	VENTILATION.								
										1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.	
								Number of openings.	Inlet—size of—feet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.
. .	62	4	17	83	5	2	. . . .	2	36	242	8,712	275	11,550	303	12,930	288	12,558
									42	384	16,128	194	6,934	225	8,100	194	6,984
1	31	6	10	47	9	1	*75,000	2	108	100	10,800	100	10,800	48	5,184	60	6,480
5	78	5	7	90	5	. .	5,000	2	7x6	175	7,350	150	6,300	175	7,350	170	7,140
4	52	8	18	78	4	. .	2,831	2	5x3	. . .	7,400	. . .	7,300	. . .	7,500	. . .	7,600
. .	7	2	3	12	1	3	408	3	6x7	100	4,200	100	4,200	110	4,620	120	5,040
. .	40	. .	6	46	4	1	2,337	3	7x5	150	5,250	200	7,000	150	5,250	200	7,000
. .	30	. .	2	32	2	2	1,031	2	7x5	150	5,250	200	7,000	175	6,125	150	5,250
2	31	11	18	60	2	4	1,757	2	4x4	260	4,160	250	4,000	260	4,160	240	3,840
4	41	. .	10	51	2	.	2,900	1	5x12	80	4,800	85	5,100	75	4,500	82	4,900
1	38	5	4	47	.	. .	1,150	3	6x7	80	3,260	75	3,150	85	3,570	75	3,150
. .	70	. .	16	86	5	3	2,560	3	6x7	200	8,400	180	7,560	190	7,980	185	7,770
									5x3	180	2,700	205	3,075	215	3,075	220	3,300
									6x6	160	5,760	190	6,840	170	6,840	160	5,760
. .	50	15	10	75	6	. .	1,684	2	6x6	250	9,000	300	10,800	200	7,200	225	8,100
									6x6	200	7,200	225	8,100	150	5,400	200	7,200
1	110	20	20	150	9	. .	4,645	3	32⅛	210	7,000	200	6,500	230	7,415	250	8,125
									25	200	5,000	220	5,500	210	5,250	200	5,000
									22	110	2,420	100	2,200	105	2,310	100	2,200
. .	12	. .	4	16	1	1	159										
. .	15	9	17	41	7	. .	1,731	2	24	216	5,184	192	4,512	180	4,608	188	4,320
. .	70	3	11	84	10	1	4,235⅓	4	36	400	14,400	333	11,988	240	8,640	230	8,280
									36	250	9,000	200	7,200	240	8,640	210	7,560
									36	240	8,640	216	7,776	200	7,200	180	6,480
									36	190	6,840	185	6,600	180	6,480	150	5,400
. .	30	2	2	34	2	. .	1,472⅙	. .	36	100	3,600	110	3,960	105	3,780	100	3,600
. .	18	3	5	26	2	. .	1,707¾	2	6x7	110	4,050	115	4,830	120	5,040	110	4,620
. .	33	11	8	52	3	. .	2,876¾	3	6x7	115	4,830	120	5,040	120	5,040	110	4,620
. .	30	3	10	43	3	1	655	2	36	135	4,860	150	4,900	70	2,520	67	2,412
2	40	10	23	73	4	. .	2,087⅛	3	4x6	410	9,840	320	7,680	400	9,600	320	7,680
. .	47	10	8	65	4	. .	3,700	2	5½x7	140	5,390	150	5,775	115	4,327	170	6,545
. .	15	7	4	26	2	. .	1,500	1	5x9	65	2,935	75	3,375	70	3,150	65	2,925
. .	34	2	. . .	36	3	. .	. . .	2	38⅛	90	3,465	180	6,930	125	4,750	130	5,005
2	39	. .	10	49	3	. .	1,800	2	7′ 4″ x 5′ 7″	135	5,444	135	5,444	180	7,259	170	6,856
4	31	3	9	43	2	. .	1,500	1									
. .	102	18	20	140	10	. .	4,420										
. .	100	20	17	137	11	. .	6,200										
1	30	3	2	35	1	1	1,300	2	6x7	70	2,940	75	3,150	72	3,024	63	2,646
. .	28	3	13	44	2	2	2,065	2	6x6	125	4,500	150	5,400	130	4,680	135	4,860
. .	50	10	16	76	4	2	1,600	2	41	190	7,990	200	8,200	210	8,610	180	7,380
									15¾	150	2,361	140	2,205	120	1,890	160	2,520
. .	40	6	5	51	4	2	1,731	3	5⅛ x5¾	280	8,540	281	8,570	302	9,211	270	8,100
. .	14	4	5	23	2	. .	259¼	2	4x5							150	3,000

*Bushels.

A STATEMENT *of the Names, Power, Capacity, and Ventilation of the respective*

NAME OF COLLIERY.	VENTILATION.									
			1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.	
	Average velocity of air current per month at inlet.	Number of headings.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current per minute at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.
Hite, No. 2,		5	294	11,760	251	10,040	232	9,280	199	7,960
			270	6,750	175	4,375	199	4,985	233	5,825
			299	7,475	261	6,525	232	5,800	289	6,225
			517	19,404	365	14,052	484	18,634	422	16,247
Natrona Mine,		3								
Wise Shaft,	165	2	150	2,100	140	1,960	200	2,800	200	2,800
			210	4,4.0	200	4,200	230	4,830	220	4,620
Hickory Mine,		2		6,400		6,300		6,500		6,200
Clinton Mine,			200	2,800	200	2,800	220	3,080	240	3,360
Catfish Mine,										
Lower Hillville Mine,										
Orangeville Shaft,		1	160	2,560	155	2,480	160	2,560	140	2,240
Neshannock, No. 2,		3	140	4,200	145	4,410	138	4,140	145	4,350
Coal Center,		5								
Welsh Bank,		3	260	14,560	280	15,680	275	15,400	275	15,400
Baker Bank,		5	200	3,600	250	4,500	150	2,700	200	3,600
Stoneboro' Mine,		4	200	3,200	210	3,060	240	3,840	240	3,840
			190	3,800	180	3,600	190	3,800	200	4,000
			150	2,400	160	2,480	170	2,720	160	2,560
			160	3,400	150	3,600	140	3,360	150	3,600
Reimerton Mine,										
Stewardson Furnace Mine,		1	130	5,850	100	4,500	90	4,050	100	4,500
Fairmount, No. 1,		4	300	7,500	270	6,750	200	5,000	200	5,000
			250	9,000	180	4,500	190	4,750	180	4,500
			190	4,750	175	4,375	180	4,500	190	4,750
			150	3,750	125	3,125	120	3,000	125	3,125
Fairmount, No. 4,		3	90	2,250	100	2,500	95	2,375	90	2,250
Washington Mine,		3	90	4,050	95	4,215	100	4,500	90	4,050
Pancoast Mine,		6	95	4,575	100	4,500	100	4,500	90	4,050
Sligo Branch Mine,		3	105	3,990	80	3,040	61	2,318	42	1,596
Pacific Slope Mine,		4								
Home Bank, No. 1,			100	4,000	110	4,400	90	3,600	155	6,200
Home Bank, No. 2,			220	4,400	250	5,000	220	4,400	240	4,800
Cannelton Mine,			700	3,840	750	4,060	700	3,840	675	3,655
Oakland, No. 2,		2	265	3,005	250	2,835				
			125	2,712	120	2,064	360	3,780	400	4,200
Oakland, No. 3,			125	2,637	120	2,212	150	2,766	135	2,489
			140	1,925	140	1,925	165	2,268	160	2,772
* Diamond Mine,										
Pardoe Mine,										
Barnes' Mine,										
Burnette Mine,		2	71	2,982	73	3,066	70	2,940	60	2,646
Maple Grove Mine,			50	1,150	50	1,150				
			30	720	30	720				
Davidson Mine,		3	110	2,970	100	2,700	120	3,240	100	2,700
			55	1,025	65	975	60	900	50	750
			60	1,980	75	2,475	80	2,640	70	2,310
Jackson Center Mine,			550	6,600	554	6,648	580	6,960	520	6,240
Philadelphia Mine,									70	1,225

*Reported not running in month of May.

Collieries in the Second Bituminous District of Pennsylvania.—Continued.

VENTILATION.											
		1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.			
Average velocity per minute for the month.	Outlet—size of—feet.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Average number of feet passing out per month.	LOCATION.
. . . .	60	669	40,140	612	36,720	622	37,320	640	38,400	. . . .	Allegheny county.
. . . .	75	. . .	. . .	. .	. . . .	. . . .	. . . .	. .	. . . .	. . . .	do.
. . .	7x3½	380	9,310	350	8,575	365	8,942½	360	8,220	. . . .	Mercer county.
. . . .	4x8	. .	7,800	. .	7,600	. . .	7,700	. . .	7,900	. . . .	do.
. . . .	5x6	300	9,000	300	9,000	320	9,600	340	10,200	. . . .	Lawrence county.
. . . .	7x5	150	5,250	200	7,000	150	5,250	200	7,000	. . . .	Clarion county.
. . . .	7x5	150	5,250	200	7,000	175	6,125	150	5,250	. . . .	do.
. . . .	4x4	250	4,000	240	3,840	250	4,000	230	3,680	. . . .	Mercer county.
. . . .	. .	220	4,360	230	4,555	214	4,160	227	4,537	. . . .	do.
. . . .	6x7	95	3,990	87	3,654	93	4,110	74	3,108	. . . .	Lawrence county.
. . . .	6x6	320	11,520	365	13,140	330	11,880	360	12,960	. . . .	do.
. . . .	5x6	350	10,500	400	12,000	200	6,000	250	7,500	. . . .	Beaver county.
. . . .	22	350	7,710	340	7,140	360	7,920	370	8,140	. . . .	Mercer county.
	17	410	6,970	420	7,140	450	7,650	420	7,140		
. . . .	. . .	. .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	Armstrong county.
. . . .	20	224	4,480	200	4,000	184	3,680	196	3,920	. . . .	do.
. . . .	25	300	7,500	270	6,750	200	5,000	200	5,000	. . .	Clarion county.
	25	250	9,000	180	4,500	190	4,750	180	4,500		
	25	190	4,750	175	4,375	180	4,500	190	4,750		
	25	150	3,750	125	3,125	120	3,000	125	3,125		
. . . .	25	90	2,250	100	2,500	95	2,375	90	2,250	. . . .	do.
. . . .	6x7	110	4,620	115	4,830	120	5,040	110	4,620	. . . .	Jefferson county.
. . . .	8½x9	63	4,788	66	5,016	67	5,092	60	4,560	. . .	do.
. . . .	24	306	7,344	250	6,000	220	5,280	156	3,744	. . . .	Clarion county.
. . . .	4½x5	430	10,316	305	6,608	420	9,100	300	6,500	. . . .	Mercer county.
. . . .	5x8	110	4,400	120	4,800	100	4,000	160	6,400	. . . .	do.
. . . .	5½x8	60	2,640	70	3,080	65	2,860	65	2,860	. . . .	do.
. . . .	45½	130	5,915	120	5,460	115	5,232	120	5,460	. . . .	Beaver county.
. . . .	5′5″ X 8′1″	140	6,225	130	5,781	170	7,442	165	7,223	. . . .	Mercer county.
. . . .	. . .	. . . .	. . . .	. . .	. . . .	. . .	. . . .	. .	. . . .	. . . .	do.
. . . .	. . .	. . . .	. . . .	.	. . . .	. . .	. . . .	. . .	. . . .	. .	Jefferson county.
. . . .	. . .	. . . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	Mercer county.
. . . .	. . .	. . . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	Butler county.
. . . .	5x6	98	2,940	105	3,150	100	3,000	88	2,640	. . . .	do.
. . . .	5x5	400	10,000	425	10,625	380	9,500	400	10,000	. . . .	Venango county.
. . . .	27	200	5,400	240	7,430	230	6,210	250	6,750	. . . .	Lawrence county.
. . . .	5x4	430	8,600	432	8,640	463	9,260	429	8,580	. . . .	Mercer county.
. . . .	3x4	. . .	. . . .	. . .	. . . .	. . .	. . . .	300	3,600	. . . .	Venango county.

A STATEMENT *of the Names, Power, Capacity, and Ventilation of the* *vania, for the Month*

NAME OF COLLIERY.	NAME OF OPERATOR.	Character of coal—bituminous or semi-bituminous.	Slope, shaft, or drift.	Pumps—how many.	Number of engines.	Horse power.
Hite, No. 2,	P. Y. Hite,	Bituminous,	Drift,			
Washington Mine,	Frank Williams,	do.	do.			
Pancoast Mine,	Heim, Goodwill & F. Williams,	do.	do.			
Hickory Mine,	Spearman & Co.,	Bitum. block,	Shaft,	3	1	20
Carbon Mine,	Carbon Coal Company,	Bituminous,	Drift,			
Neshannock, No. 2,	J. Phillips & Co.,	Bitum. block,	Shaft,	1	1	20
Sligo Branch Mine,	Sligo Branch Coal Company,	Bituminous,	Drift,			
Baker Mine,	L. S. Hoyt,	do.	do.			
Orangeville Shaft,	Morris Coal Company,	Bitum. block,	Shaft,	2	2	20 25
Pacific Slope,	Dunham, Roberts & Co.,	do.	Slope,	3	1	40
Cannelton,	I. F. Mansfield,	Bitum. cannel,	Drift,			
Wise Shaft,	Snyder Coal Company,	Bitum. block,	Shaft,	2	1	40
Home Bank,	Buhl, Westerman & Co.,	do. do.	do.	1	1	50
Hamilton Mine,	Hamilton Coal Company,	Bituminous,	Drift,			
Stewardson Furnace M.,	F. B. & A. Laughlin,	do.	do.			
Burnette Bank,	A. Burnette,	do.	do.	1		
Natrona Mine,	Penn Salt Manufacturing Co.,	do.	do.	1	1	20
Clinton Mine,	Clinton Coal Company,	do.	do.			
Fairmount Mine,	Fairmount Coal Company,	do.	do.			
Fairmount Mine,	Fairmount Coal Company,	do.	do.			
Faiamount, No. 4, Mine,	Fairmount Coal Company,	do.	do.			
Pardoe Mine,	Mercer Mining and Manuf'g Co.,	do.	do.	2	1	8
Barnes' Mine,	Mercer Mining and Manuf'g Co.,	do.	do.	2	1	8
Stoneboro' Mine,	Mercer Iron and Coal Company,	do.	Slope,		1	75
Maple Grove,	S. P. McCalmont,	do.	Drift,			
Oakland, No. 2,	Pierce, Frampton & Co.,	Bitum. block,	Shaft,	2	1	
Oakland, No. 3,	Oakland Coal Company,	do.	do.	2	1	
Red Bank Mine,	William Welsh,	Bituminous,	Drift,			
Philadelphia Mines,	James Kennedy,	do.	do.			
Beaver Mines,	Lee & Patterson,	do.	do.	2		
Jackson Coal Mine,	Jackson Coal Company,	do.	do.			
Welsh Bank,	Wampum Coal Company,	do.	do.			
Coal Center,	John Bell,	do.	Shaft,	1	1	15
Bethel, No. 2,	Curtis & Boyce,	do.	do.	2	1	35

respective Collieries in the Second Bituminous Mine District of Pennsyl-of June, 1879.

Boilers—how many.	Number of miners—men.	Number of miners—boys.	Other persons.	Total number of persons.	Number of mules inside.	Number of mules outside.	Total production in tons.	VENTILATION.								
										1ST WEEK		2D WEEK.		3D WEEK.		4TH WEEK.	
								Number of openings.	Inlet—size of—feet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.
. .	62	4	16	82	5	2	3,894	2	42	230	11,760	214	8,998	375	15,760	375	15,760
									38	327	12,426	451	17,147	327	12,454	441	16,786
. .	22	3	3	28	2	. .	1,850	2	6x7	115	4,830	110	4,620	120	5,040	110	4,620
. .	33	8	6	47	3	. .	3,134	2	6x7	115	4,830	120	5,040	120	5,040	110	4,620
4	54	9	17	80	5	. .	2,979¼	2	4x5	. . .	9,000	. . .	8,050	. . .	9,050	. . .	8,000
. .	23	4	5	32	1	1	1,000	2	3x4	245	2,940	250	3,000	244	2,928	243	2,916
4	41	2	10	53	3	. .	2,600	1	5x12	80	4,800	75	4,500	70	4,200	68	4,080
. .	32	2	7	41	2	. .	1,208	2	36	140	5,040	110	3,960	170	6,120	90	3,240
. .	55	15	10	80	6	. .	1,928	2	6x6	200	7,200	250	9,000	300	10,800	225	8,100
2	31	15	19	65	3	4	1,769	2	4x4	270	4,320	265	4,240	270	4,320	275	4,400
2	40	10	23	73	4	.	1,782	3	4x6	. . .	. . . .	350	4,800	320	7,680	300	7,200
. .	31	2	2	35	1	1	1,200	2	7x5½	130	5,005	140	5,390	150	5,775	140	5,390
5	76	5	6	87	5	. .	6,000	2	6x7	180	7,560	165	6,930	155	6,510	160	6,720
5	45	11	7	63	4	. .	3,300	2	5½x7	100	3,850	110	4,235	120	4,620	95	3,657½
. .	40	2	9	51	2	1	2,500	3	54	120	6,480	120	6,480	115	6,210	115	6,210
. .	14	8	17	39	6	. .	1,363	2	24	200	4,800	172	4,128	184	4,416	160	3,840
1	27	3	1	31	1	1	1,000	2	6x7	80	3,360	74	3,168	67	2,814	70	2,940
1	31	8	10	49	10	1	*67,000	4	108	60	6,480	50	5,400	55	5,940	60	6,480
. .	7	2	3	12	1	3	435	3	6x7	100	4,200	120	5,040	110	4,620	110	4,620
. .	71	3	11	85	9	1	4,534	5	36 sq.	400	14,400	333	11,988	300	10,800	200	7,200
									36 "	200	7,200	220	7,920	190	7,840	195	7,020
. .	. .	. .	. . .	. . .	. .	. .	. . . .	.	36 "	310	11,160	150	5,400	145	5,220	150	5,400
									36 "	250	9,000	200	7,200	150	5,400	125	4,500
									36 "	120	4,320	110	2,960	115	4,140	105	3,780
.	28	2	4	34	3	. .	1,297	2	36 "	100	3,600	105	3,780	110	3,960	90	3,240
1	105	16	20	141	6	3	3,155	3	48 "	320	15,360	300	14,400	300	14,400	310	14,880
1	102	27	33	162	6	3	4,700	12									
1	120	20	20	160	9	. .	4,024	4	32	260	8,320	270	8,640	250	8,000	240	7,680
									25	250	6,250	240	6,000	230	5,750	260	6,500
. .	28	3	11	42	2	. .	866	2	36	. . .	. . . .	. . .	. . .	250	8,100	200	7,200
2	34	5	4	43	3	. .	1,529	2	7′6″ x 8′10″	200	10,250	285	3,562	. . .	6,425	. . .	5,100
4	32	3	4	39	2	. .	1,654	1	. . .	60	2,899	65	3,131	50	1,916	70	2,795
										70	2,683	60	2,359	75	3,645	70	2,430
. .	18	2	. . .	20	1	. .	1,248	.	. . .	75	3,375	150	6,750	160	7,200	140	6,300
. .	14	4	5	23	2	. .	645	2	4x5	. .	. . . .	. . .	. . .	. .	. . . .	170	2,400
1	60	17	30	107	9	5	2,332	2	5½x6	200	6,600	175	5,775	180	5,940	190	6,270
. .	33	7	5	45	4	2	1,200	3	5½x5½	233	8,632	281	8,570	280	8,540	302	9,211
. .	90	. .	24	114	7	. .	4,040	3	6x7	220	9,240	205	8,610	220	9,240	175	7,350
									5x3	175	2,625	190	2,850	180	2,700	215	3,225
									6x6	180	6,480	185	6,660	170	6,120	190	6,840
1	35	4	4	43	. .	. .	900	2	42	60	2,520	60	2,520	75	3,150	80	3,360
3	43	7	6	56	3	. .	143	2	20	190	3,800						

* Bushels.

A STATEMENT *of the Names, Power, Capacity, and Ventilation of the respective*

NAME OF COLLIERY.	VENTILATION.									
			1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.	
	Average velocity of air current per month at inlet.	Number of headings.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current per minute at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.
Hite, No. 2,		4	252	10,080	213	8,550	261	10,450	270	10,830
			247	6,175	156	3,918	251	6,295	164	6,243
			256	6,400	204	6,106	280	7,006	252	6,318
			403	15,515	447	17,109	479	18,470	460	17,738
Washington Mine,		5	95	4,215	90	4,050	120	5,040	90	4,050
Pancoast Mine,		6	95	3,990	100	4,500	100	4,500	90	4,050
Hiekory Mine,		3	....	8,000	....	7,050	....	8,050	....	7,000
Carbon Mine,		3	100	2,000	105	2,100	102	2,040	99	1,980
Neshannock, No. 2,		4	140	4,200	137	4,110	130	3,900	118	3,540
Sligo Branch Mine,		5	73	2,774	70	2,660	72	2,736	45	1,705
Baker Mine,		5	150	2,700	200	3,600	275	4,950	175	3,150
Orangeville Shaft,		1	180	3,600	175	3,500	180	3,600	185	3,700
Pacific slope,		4	....	....	....	....	....	....	....	....
Cannelton,		....	700	3,795	675	3,655	625	3,385	700	3,795
Wise Shaft,		....	210	4,200	175	3,500	165	3,300	170	3,400
			200	4,200	180	3,780	175	3,675	180	3,780
Home Bank,		....	70	2,800	80	3,200	100	4,000	75	3,000
Hamilton Mine,		4	115	6,210	115	6,210	110	5,940	110	5,940
Stewardson Furnaee Mine,		1	125	5,625	104	4,628	100	4,500	96	4,320
Burnette Bank,		2	79	3,318	73	3,066	66	2,772	70	2,940
Natrona Mine,		3	....	....	....	....	....	....	....	....
Clinton Mine,		....	200	2,800	220	3,080	240	360	200	2,800
Fairmount Mine,		5	260	6,700	290	7,250	270	6,750	130	3,250
			180	4,500	280	7,000	175	4,375	140	3,500
Fairmount Mine,		....	200	5,000	133	3,325	150	3,750	133	3,325
			133	3,325	140	3,500	120	3,000	120	3,000
			105	2,625	100	2,500	110	2,750	103	2,575
Fairmount Mine, No. 4,		3	75	1,875	90	2,250	80	2,000	77	1,925
Pardoe Mine,		4	....	....	....	....	....	....	....	....
Barnes' Mine,		....	....	....	....	....	....	....	....	....
Stoneboro' Mine,		5	240	3,840	200	4,000	240	3,840	200	3,200
			180	3,600	210	3,360	180	3,600	210	4,200
			200	3,200	210	3,360	180	2,880	200	3,200
			150	3,600	180	4,320	160	3,840	180	4,320
Maple Grove,		....	....	....	....	....	....	....	....	....
Oakland, No. 2,		1	....	3,478	....	6,251	....	3,437	....	6,251
Oakland, No. 3,		2	140	2,330	150	2,550	120	1,650	200	2,750
			135	1,856	170	2,337	136	2,266	130	2,167
Red Bank Mine,		....	70	3,150	150	6,750	110	7,200	145	6,525
Philadelphia Mines,		....	....	....	....	....	....	....	38	....
Beaver Mines,		....	250	6,875	225	6,187	230	6,325	240	6,600
			120	1,620	100	1,350	110	1,485	180	1,620
Jaekson Coal Mine,		4	560	6,720	554	6,648	580	6,960	520	6,240
Welsh Bank,		3	280	15,680	265	14,840	280	15,680	275	15,400
Coal Center,		....	45	1,890	51	2,142	57	2,394	48	2,016
Bethel, No. 2,		....	260	3,900	....	....	....	....	....	....

Collieries in the First Bituminous Mine District of Pennsylvania—Continued.

VENTILATION.											
		1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.			
Average velocity per minute for the month.	Outlet—size of—feet.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Average number of feet passing out per month.	WHERE LOCATED.
. . .	60	612	36,720	669	40,140	689	41,385	612	36,765	. . .	Allegheny county.
. . .	6x7	115	4,830	110	4,620	120	5,040	110	4,620	. . . .	Jefferson county.
. . .	8½x9	63	4,819	66	5,016	67	5,092	60	4,560	. . . .	do.
. . .	5x6	. . .	9,000	. .	8,050	. . .	9,050	. . .	8,000	. . . .	Mercer county.
. . .	5x8	55	2,200	60	2,400	56	2,240	50	2,000	. . . .	do.
. . .	. . .	205	4,260	195	4,030	190	3,915	175	3,570	. . . .	do.
. . .	24	275	6,600	260	6,480	275	6,600	270	6,480	. . . .	Clarion county.
. . .	5x6	300	9,000	350	10,500	400	12,000	325	9,750	. . . .	Beaver county.
. . .	4x4	250	4,000	240	3,840	250	4,000	260	4.160	. . . .	Mercer county.
. . .	4′ 4″ x 5′ 0″	. . .	. . . .	320	6,933	300	6,500	315	6,825	. . .	do.
. . .	6⅔x6⅔	130	5,915	125	5,687	125	5,687	130	5,915	. . . .	Beaver county.
. . .	7x3½	380	9,310	340	8,330	330	8,085	340	8,330	. . .	Mercer county.
. . .	5x8	80	3,200	100	4,000	110	4,400	95	3,800	. . . .	do.
. . .	25	115	6,210	115	6,210	110	5,940	110	5,940	. . . .	Jefferson county.
. . .	20	208	4,160	184	3,680	192	3,840	168	3,360	. . . .	Armstrong county.
. . .	5⅛x5⅛	111	3,330	102	3,060	92	2,760	98	2,940	. . . .	Butler county.
. . .	75	70	5,250	85	6,375	40	3,000	45	3,375	. . . .	Allegheny county.
. . .	5x6	300	9,000	340	10,200	320	9,600	360	10,800	. . . .	Lawrence county.
. . .	*25	260	6,700	290	7,250	270	6,750	130	3,250	. . . .	Clarion county.
	*25	180	4,500	280	7,000	175	4,375	140	3,500		
. . .	*25	200	5,000	133	3,325	150	3,750	133	3,325	. . . .	do.
	*25	133	3,325	140	3,500	120	3,000	120	3,000		
	*25	105	2,625	100	2,500	110	2,750	103	2,575		
. . .	*25	75	1,875	90	2,250	80	2,000	77	1,925	. . . .	do.
. . .	*30	500	15,000	500	15,000	480	14,400	500	15,000	. . . .	Mercer county.
. .	. .	. . .	. . . .	. . .	. . . .	. . .	. . .	. . .	. . .	. . . .	Butler county.
. . .	22	400	8,800	410	9,020	360	7,920	440	9,680	. . . .	Mercer county.
	17	420	7,140	400	6,800	450	7,650	400	6,800		
. .	5x5	. . .	. . . .	. . .	. . .	600	15,000	575	14,375	. . . .	Venango county.
. .	8′ 0″ x 5′ 5″	. . .	7,900	. . .	6,125	. . .	6,783	. . .	6,125	. . . .	Mercer county.
. . .	. . . .	110	2,069	125	2,351	170	2,961	170	2,961	. . . .	do.
		155	2,698	160	2,437	140	2,633	145	2,727		
. . .	. . .	75	3,375	160	7,200	165	7,425	140	6,300	. . . .	Armstrong county.
. . .	3x4	. . .	. . . .	. . .	. . .	. .	. .	420	5,040	. . . .	Venango county.
. .	5⅛x7	500	19,000	450	17,100	475	18,050	480	18,240	. . . .	Lawrence county.
. .	5x4	470	9,400	420	8,400	432	8,640	430	8,600	. . . .	Mercer county.
. . .	6x6	370	13,320	330	11,880	340	12,240	320	11,520	. . . .	Lawrence county.
. . .	42	66	2,772	63	2,656	60	2,520	78	3,276	. . . .	do.
. .	13	310	4,030	. . .	. . . .	. . .	. . .	. . .	. . . .	. . . .	Mercer county.

* Square feet.

A STATEMENT *of the Names, Power, Capacity, and Ventilation of the* *vania, for the Month*

NAME OF COLLIERY.	NAME OF OPERATOR.	Character of coal—bituminous or semi-bituminous.	Slope, shaft, or drift.	Pumps—how many.	Number of engines.	Horse power.
Hite, No. 2,	P. Y. Hite,	Bituminous,	Drift,			
Stewardson Furnace M.,	F. B. & A. Laughlin,	do.	do.			
Orangeville Shaft,	Morris Coal Company,	Bitum. block,	Shaft,	2	2	20
						25
Wise Shaft,	Snyder Coal Company,	do. do.	do.	2	1	40
Hickory Mine,	Spearman & Co.,	do. do.	do.	3	1	20
Clinton Mine,	Clinton Coal Company,	Bituminous,	Drift,			
Hamilton Mine,	Hamilton Coal Company,	do.	do.			
Soldier Run Mine,	Powers, Brown & Co.,	do.	do.			
Neshannock, No. 2,	J. Phillips & Co.,	Bitum. block,	Shaft,	2	1	20
Carbon Run Mine,	Carbon Coal Company,	do.	Drift,			
Fairmount, No. 1,	Fairmount Coal Company,	Bituminous,	do.			
Fairmount, No. 1,	Fairmount Coal Company,	do.	do.			
Fairmount, No. 4,	Fairmount Coal Company,	do.	do.			
Pancoast Mine,	Heim, Goodwill & F. Williams,	do.	do.			
Washington Mine,	Frank Williams,	do.	do.			
Stoneboro' Mine,	Mercer Iron and Coal Company,	do.	Slope,		1	75
Jackson Coal Mine,	Jackson Coal Company,	do.	Drift,			
Home Bank,	Buhl, Westerman & Co.,	Bitum. block,	Shaft,	1	1	50
Cannelton Mine,	I. F. Mansfield,	Bitum. caunel,	Drift,			
Burnette Bank,	A. Burnette,	do.	do.	1		
Oakland, No. 2,	Pierce, Frampton & Co.,	Bitum. block,	Shaft,	2	1	
Oakland, No. 3,	Oakland Coal Company,	do.	do.	2	1	
Natrona Mine,	Penn Salt Manufacturing Co.,	Bituminous,	Drift,	1	1	20
Barnes' Mine,	Mercer Mining and Manuf'g Co.,	do.	do.	2	1	8
Pardoe Mine,	Mercer Mining and Manuf'g Co.,	do.	do.	2	0	
Sligo Branch Mine,	Sligo Branch Coal Company,	do.	do.			
Baker Bank,	L. S. Hoyt,	do.	do.			
* Lee & Patterson,	Lee & Patterson,	do.	do.			
† Catfish Mine,	Pittsburgh Coal and Mining Co.					
† Mineral Ridge Mine,	T. J. Skidmore.					
Coal Center,	John Bell,	do.	Shaft,	1	1	15
Welsh Bank,	Wampum Coal Company,	do.	Drift,			
Bethel Bank,	Curtis & Boyce,	do.	Shaft,	2	1	35
Red Bank,	W. Welsh,	do.	Drift,			
Maple Grove Mine,	S. P. McCalmont,	do.	do.			
Philadelphia Mine,	James Kennedy,	do.	do.			
Pacific Slope,	Dunham, Roberts & Co.,	do.	Slope,	3	1	40

* Reported not running. † Not running.

respective Collieries in the First Bituminous Mine District of Pennsyl-
of July, 1879.

Boilers—how many.	Number of miners—men.	Number of miners—boys.	Other persons.	Total number of persons.	Number of mules inside.	Number of mules outside.	Total production in tons.	VENTILATION.								
										1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.	
								Number of openings.	Inlet—size of—feet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.
. .	66	3	8	77	6	2	6,246	2	38	422	16,044	384	14,620	384	14,662	327	12,454
									42	278	12,526	308	12,967	280	11,770	308	12,957
. .	14	8	16	38	6	. .	1,022	2	24	192	4,608	180	4,320	152	3,648	152	3,648
2	32	16	18	66	3	4	1,988	2	4x4	260	4,160	260	4,160	250	4,000	250	4,000
5	65	5	5	75	5	2	4,700	2	7x6	170	7,140	160	6,720	165	6,930	170	7,140
4	56	8	18	82	5	. .	3,289	2	4x5		10,000	. . .	9,050		10,000	. . .	9,000
. .	14	5	3	22	1	3	. . . .	3	6x7	100	4,200	110	4,620	120	5,040	110	4,620
. .	44	3	9	56	3	1	2,000	3	54	110	5,940	. . .	. . . .	. . .	. . .	110	5,940
. .	22	1	6	29	2	. .	1,100	2	7x7	. . .	. . .	. . .	. . . .	. . .	. . .	50	2,450
4	40	2	9	51	3	. .	2,500	1	5x12	81	4,860	86	5,160	79	4,720	84	5,040
. .	24	3	3	30	1	1	1,000	2	3x4	244	2,928	243	2,916	241	2,892	242	2,904
. .	74	4	11	89	9	1	4,512½	5	36	220	7,920	300	10,800	250	9,000	400	14,400
									36	333	11,988	333	11,988	300	10,800	310	11,100
. .	. . . .	. .	. . .	. . .	. .	. .	. . . .	. .	36	190	6,840	185	6,660	194	6,984	200	7,200
									36	182	6,552	150	5,400	165	5,940	133	4,786
									36	194	6,984	175	6,300	180	6,480	200	7,200
. .	41	3	4	48	4	. .	2,171	2	36	110	3,960	105	3,780	94	3,384	105	3,780
. .	30	7	5	42	3	. .	2,804	3	6x7	115	4,830	110	4,620	120	5,040	110	4,620
. .	25	4	3	32	3	. .	1,859	2	6x7	115	4,830	120	5,040	110	4,620	115	4,830
1	120	20	20	160	9	. .	5,706	. .	32	230	7,360	245	7,840	240	7,680	235	7,520
								4	25	250	6,250	270	6,750	255	6,375	260	6,500
. .	24	3	3	30	3	2	1,426	3	5⅛x5¼	200	6,050	180	5,444	180	5,444	190	5,747
5	37	5	6	48	3	. .	2,600	2	5½x7	100	3,850	125	4,812½	150	5,775	120	4,620
. .	30	2	2	34	2	1	1,200	2	7x5⅜	120	4,620	130	5,005	110	4,235		
1	28	2	2	32	1	1	1,000	2	6½x6⅜	90	3,780	88	3,696	70	2,940	100	4,200
2	33	4	4	41	3	. .	. . . .	2	7′ 4″ x 5′ 6″	160	6,452	150	6,049	200	8,066	170	6,800
4	33	3	4	40	2	. .	1,537	1	7⅔x5	60	2,354	60	2,354	40	1,394	45	1,568
									8⅓x5⅓	60	2,899	50	4,416	30	1,440	50	1,753
1	31	8	10	49	10	1	*65,000	4	108	30	3,240	25	2,700	40	4,320	60	6,480
1	92	17	20	129	6	4	4,046	13	30	270	7,100	300	9,000	300	9,000	300	9,000
									20	100	2,000	120	2,400	120	2,400	120	2,400
									16	180	2,880	160	2,560	160	2,560	160	2,560
1	93	14	19	126	5	3	3,930	4	50	270	13,500	280	14,000	260	13,000	260	13,000
									30	80	2,400	70	2,100	70	2,000	70	2,100
. .	35	4	9	48	2	. .	1,119	2	36	136	4,896	130	4,680	120	4,220	128	4,632
. .	50	14	10	74	6	. .	1,971	2	6x6	. . .	2,880	. . .	3,240	. . .	3,600	. . .	2,520
1	30	5	4	39		. .	1,020	3	6x7	90	3,780	85	3,570	87	3,659	85	3,570
. .	140	2	30	172	10	6	5,000	3	6x7	175	7,350	160	6,720	180	7,560	185	7,770
									5x3	200	3,000	180	2,700	210	3,150	190	2,850
									6x6	170	6,120	185	6,660	160	5,760	180	6,480
3	35	10	7	52	3	2	1,374	2	20	190	3,800	200	4,000	200	4,000	200	4,000
. .	19	2	. . .	21	1	1	647	3	. .	140	6,300	150	6,750	140	6,300		
. .	34	2	14	50	2	2	742	2	24	200	7,200	150	5,400	225	8,100	200	4,800
									36							100	3,600
. .	13	4	5	22	2	. .	383	2	4x5	. . .	. . . .	. . .	. . . .	. . .	. . . .	90	1,800
2	40	10	23	73	4	. .	1,806	3	4x6	250	6,000	410	9,840	350	8,400	340	8,160

* Bushels.

A STATEMENT *of the Names, Power, Capacity, and Ventilation in the respective*

NAME OF COLLIERY.	VENTILATION.									
			1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.	
	Average velocity of air current per month at inlet.	Number of headings.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current per minute at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.
Hite, No. 2,			251	10,070	232	9,310	237	9,500	232	9,310
			156	5,799	157	5,836	175	6,502	175	6,502
			238	5,961	308	7,7 8	251	6,293	250	6,268
			422	16,275	479	18,466	437	17,024	422	16,275
Stewardson Furnace Mine,		1	100	4,500	96	4,320	100	4,500	80	3,600
Orangeville Shaft,		1	150	2,700	150	2,700	140	2,520	140	2,520
Wise Shaft,			175	4,287⅕	150	3,675	155	3,797½	180	4,410
			190	3,990	170	2,570	180	3,780	190	3,990
Hickory Mine,		3		9,000		8,050		9,050		8,000
Clinton Mine,			200	2,800	220	3,080	240	3,360	200	2,800
Hamilton Mine,		4	120	5,000					120	5,000
Soldier Run Mine,		3								2,200
Neshannock, No. 2,		3	142	4,260	150	4,500	145	4,350	148	4,440
Carbon Run Mine,		3	127	2,540	125	2,500	126	2,520	120	2,400
Fairmount, No. 1,		5	200	5,000	250	6,250	210	5,250	300	7,500
			240	6,000	300	7,500	200	5,000	210	5,250
Fairmount, No. 1,			150	3,750	150	3,750	133	3,325	195	4,875
			150	3,750	133	3,325	150	3,750	140	3,500
			148	3,700	170	4,250	155	3,875	185	4,625
Fairmount, No. 4,		2	95	2,375	93	2,325	90	2,250	98	2,450
Pancoast Mine,		5	95	4,215	90	4,050	100	4,500	90	4,050
Washington Mine,		6	95	4,215	100	4,500	90	4,050	95	4,215
Stoneboro' Mine,		4	195	3,120	190	3,040	185	2,960	175	2,800
			200	3,200	185	2,880	180	2,880	190	3,040
			180	3,600	170	3,400	175	3,500	160	3,200
			200	3,200	180	2,880	190	3,040	150	2,400
Jackson Coal Mine,		3	350	4,320	330	3,960	355	4,320	354	4,248
Home Bank,			90	3,600	95	3,800	110	4,400	110	4,400
Cannelton Mine,		1	600	3,250	625	3,385	650	3,520		
Burnette Bank,			88	3,696	87	3,654	70	2,940	95	3,990
Oakland, No. 2,			260	4,292	300	4,953	320	5,283	300	3,900
			60	2,169	75	2,712	100	3,616	70	2,520
Oakland, No. 3,		2	100	1,436	120	1,723	120	1,731	115	2,174
			110	1,760	150	2,187	170	2,285	160	2,167
Natrona Mine,										
Barnes' Mine,		3	160	4,800	180	5,400	180	5,400	180	5,400
			170	5,100	150	4,500	150	4,500	150	4,500
Pardoe Mine,			300	6,000	180	5,400	180	5,400	180	5,400
			200	6,000	160	4,800	160	4,800	160	4,800
Sligo Branch Mine,			47	1,784	47	1,784	55	2,090	55	2,090
Baker Bank,		5		1,260		1,440		1,620		1,080
Coal Center,		5	75	1,700	78	1,812	80	1,920	85	2,000
Welsh Bank,		3	265	14,840	275	15,400	270	15,120	270	15,120
Bethel Bank,			260	3,900	270	4,050	270	4,050	270	4,050
Red Bank,			150	6,750	150	6,750	140	6,300		
Maple Grove Mine,									200	4,800
Philadelphia Mine,		2							60	1,020
Pacific Slope,		4								

Colleries in the Second Bituminous Mine District of Pennsylvania—Continued.

Ventilation.											
		1st week.		2d week.		3d week.		4th week.			
Average velocity per minute for the month.	Outlet—size of—feet.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Average number of feet passing out per month.	Location.
. . . .	60	660	39,615	655	39,330	641	38,475	593	35,625	. . . .	Allegheny county.
. . . .	20	200	4,000	184	3,680	160	3,200	160	3,200	. . . .	Armstrong county.
. . . .	4x4	250	4,000	250	4,000	240	3,840	240	3,840	. . .	Mercer county.
. . . .	7x3½	345	8,452½	330	8,035	340	8,330	345	8,452½	. . . .	do.
. . . .	5x6	. . .	10,000	. . .	9,050	. . .	10,000	. .	9,000	. . .	do.
. . . .	5x6	300	9,000	320	9,600	340	10,200	320	9,600	. . .	Lawrence county.
. . . .	25	. . .	. . . .	. . .	. . . .	. . .	. . . .	. .	. .	. . . .	Jefferson county.
. . . .	8x6	. . .	. . . .	. . .	. . . .	. . .	. . . .	100	4,800	. . . .	do.
. . . .	. . .	225	4,475	230	4,860	220	4,405	228	4,680	. . .	Mercer county.
. . . .	5x8	68	2,720	64	2,580	66	2,640	63	2,520		
. . .	25	200	5,000	250	6,250	210	5,250	300	7,500	. . . .	Clarion county.
	25	240	6,000	300	7,500	200	5,000	210	5,250		
. . . .	25	150	3,750	150	3,750	133	3,325	195	4,875	. . . .	do.
	25	150	3,750	133	3,325	150	3,750	140	3,500		
. . . .	25	148	3,700	170	4,250	155	3,875	185	4,625		
. . . .	25	95	2,375	93	2,395	90	2,250	98	2,450	. . . .	do.
. . . .	8½x9	63	4,819	60	4,560	67	5,092	110	4,560	. . . .	Jefferson county.
. . . .		115	4,830	120	5,040	110	4,620	115	4,830	. . . .	do.
. . . .	22	420	9,240	400	8,800	395	8,690	380	3,360	. . . .	Mercer county.
	17	360	6,120	365	6,205	355	6,035	360	6,120	. . . .	
. . . .	5x4	305	6,100	280	5,600	283	5,660	235	5,700	. . . .	do.
. . . .	5x8	80	3,200	90	3,600	125	5,000	135	5,400	. . . .	do.
. . . .	6¾x6¾	120	5,460	135	5,687	130	5,460	. .	. . . .	. . . .	Beaver county.
. . .	4x5	189	3,780	185	3,698	147	2,940	210	4,200	. . . .	Butler county.
. . . .	8′ 1′ x 5′ 5′′	150	6,467	150	6,467	140	6,129	140	6,119	. . . .	Mercer county.
. . .	. .	100	1,741	110	1,862	130	1,894	140	2,151	. . . .	do.
		110	1,760	. . .	2,682	135	2,281	130	2,100		
. . . .	75	35	2,625	40	3,000	30	2,250	60	4,500	. . .	Allegheny county.
. . .	30	250	7,530	270	8,100	270	8,100	270	8,100	. . . .	Butler county.
. . .	30	500	15,000	480	14,400	480	14,400	480	14,400	. . . .	Mercer county.
. . .		206	4,949	175	4,200	250	6,000	. . .	5,440	. . . .	Clarion county.
. . . .	5x6	. . .	3,750	. . .	4,500	.	5,250	. . .	3,000	. . . .	Beaver county.
. . . .	6x7	100	4,200	90	3,780	95	3,990	75	3,950	. . . .	Lawrence county.
. . . .	6x6	360	12,960	355	12,780	370	13,320	375	13,500	. . .	do.
. . . .	13	310	4,030	320	4,160	320	4,160	320	4,160	. . . .	Mercer county.
. . . .	. .	150	6,750	150	6,750	140	6,300	. .	. . .	. . . .	Armstrong county.
. . .	.	400	. . . .	450	. . . .	600	. . . .	650	. .	. . .	Venango county.
. . . .	3x4	. . .	. . . .		.	. . .	. . .	310	3,720	. . . .	do.
. . . .	5x6	230	6,900	330	9,900	280	8,400	260	7,800	. . . .	Mercer county.

A STATEMENT *of the Names, Power, Capacity, and Ventilation of the*
vania, for the Month

NAME OF COLLIERY.	NAME OF OPERATOR.	Character of coal—bituminous or semi-bituminous.	Slope, shaft, or drift.	Pumps—how many.	Number of engines.	Horse power.
Hite, No. 2,	P. Y. Hite,	Bituminous,	Drift,			
Natrona Mine,	Penn Salt Manufacturing Co.,	do.	do.	1	1	20
Stewardson Fur. Mine,	F. B. & A. Laughlin,	do.	do.			
Neshannock, No. 2,	J. Phillips & Co.,	Bitum. block,	Shaft,	2	1	20
Carbon Run Mine,	Carbon Coal Company,	do.	Drift,			
Orangeville Shaft,	Morris Coal Company,	do.	Shaft,	2	2	20 25
Hamilton Mine,	Hampton Coal Company,	Bituminous,	Drift,			
Soldier Run Mine,	Powers, Brown & Co.,	do.	do.			
Catfish Mine,	Pittsburgh Coal and Mining Co.,	do.	do.			
Lower Hillville,	do. do.	do.	do.			
Stoneboro' Mine,	Mercer Iron and Coal Company,	do.	Slope,		1	75
Wise Shaft,	Snyder Coal Company,	Bitum. block,	Shaft,	2	1	40
Home Bank, No. 1,	Buhl, Westerman & Co.,	do.	do.	1	1	50
Pardoe Mine,	Mercer Mining and Manuf'g Co.,	Bituminous,	Drift,	2	1	8
Barnes' Mine,	do. do.	do.	do.	2	1	8
Burnette Bank,	A. Burnette,	do.	do.	1		
Fairmount, No. 1,	Fairmount Coal Company,	do.	do.			
Fairmount, No. 4,	Fairmount Coal Company,	do.	do.			
Cannelton Mine,	I. F. Mansfield,	Bitum. cannel,	do.			
Clinton Mine,	Clinton Coal Company,	Bituminous,	do.			
Pancoast Mine,	Heim, Goodwill & F. Williams,	do.	do.			
Washington Mine,	Frank Williams,	do.	do.			
Jackson Coal Mine,	Jackson Coal Company,	do.	do.			
Pacific Slope,	Dunham, Roberts & Co.,	Bitum. block,	Slope,	3	1	40
Philadelphia Mine,	James Kennedy,	Bituminous,	Drift,			
Oakland, No. 2,	Pierce, Frampton & Co.,	Bitum. block,	Shaft,	2	1	
Oakland, No. 3,	Oakland Coal Company,	do.	do.	3	1	
Baker Bank,	L. S. Hoyt,	Bituminous,	Drift,			
Welsh Bank,	Wampum Coal Company,	do.	do.			
Maple Grove Mine,	S. P. McCalmont,	do.	do.			

respective Collieries in the Second Bituminous Mine District of Pennsyl-of August, 1879.

Boilers—how many.	Number of miners—men.	Number of miners—boys.	Other persons.	Total number of persons.	Number of mules inside.	Number of mules outside.	Total production in tons.	VENTILATION.								
										1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.	
								Number of openings.	Inlet—size of—feet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.
. .	68	4	15	87	5	2	6,559	2	42	299	12,568	290	12,169	294	12,218	308	12,967
									38	365	13,898	355	13,580	365	13,893	368	13,898
1	32	17	10	59	10	1	*69,300	4	108	22	2,430	50	5,400	130	14,040	20	2,160
. .	15	8	17	40	6	. .	1,082	2	24	160	3,840	180	4,320	192	4,608	196	4,704
4	43	2	16	61	3		1,700	2	5x12	85	5,100	90	5,400	86	5,160	88	5,280
. .	26	3	3	32	2	1	1,200	2	3x4	242	2,904	247	2,964	245	2,940	243	2,916
2	38	12	18	68	3	4	1,977	2	4x4	260	4,160	265	4,240	265	4,240	260	4,160
. .	32	1	9	42	3	1	2,000	3	50	70	3,500	†	. . . .	80	4,000	70	3,500
									50					30	1,500	30	1,500
. .	28	1	7	36	2	. .	1,300	2	7x7	50	2,450	30	1,470	40	1,960	50	2,450
. .	41	10	7	58	4	1	1,152	2	6x5	75	2,250	75	2,250	80	2,400	80	2,400
									5x7	60	2,100	60	2,100	75	2,625	75	2,625
. .	24	6	2	32	3	. .	825	2	6x5½	90	2,970	100	3,300	90	2,970	80	2,640
1	140	20	20	180	10	. .	5,745	3	32	235	7,520	240	7,680	250	8,000	280	8,960
									25	250	6,250	245	6,125	260	6,500	265	6,525
5	73	5	6	84	5	. .	5,300	2	7x6	180	7,560	200	8,400	180	7,560	190	7,980
2	30	9	5	44	2	. .	1,876	2	5½x7	130	5,005	. . .	. . . .	140	5,390	110	4,235
1	90	17	17	124	6	3	4,200	3	48	300	14,400	310	14,880	300	14,400	300	14,400
1	87	16	17	120	7	3	4,800	13	30	200	6,000	200	6,000	200	6,000	190	5,700
									30	120	3,600	120	3,600	120	3,600	120	3,600
									30	100	2,000	120	2,400	120	2,400	100	2,000
									30	100	2,000	100	2,000	100	2,000	100	2,000
1	31	2	1	34	1	1	1,000	2	6x7	70	2,890	72	2,924	75	3,150	80	3,360
. .	61	3	13	77	10	1	3,831	5	36	200	7,200	190	6,840	150	5,400	190	6,840
									36	110	3,960	105	4,780	110	3,960	100	3,600
									36	100	3,600	95	3,420	110	3,960	115	4,140
									36	220	7,920	200	7,200	215	7,740	220	7,920
									36	338	4,988	300	10,800	225	8,100	250	9,000
. .	37	4	4	45	4	. .	1,397	2	16x4½	100	7,200	90	6,480	95	6,840	150	10,800
. .	20	2	2	24	1	1	500	2	7x5½	. . .	. . . .	. . .	. . . .	100	3,850	100	3,850
. .	14	4	3	21	1	3	700	3	6x7	100	4,200	110	4,620	120	5,040	100	4,200
. .	27	8	7	42	3	. .	2,237	4	6x7	90	3,780	80	3,260	40	1,680	60	2,520
. .	22	3	7	32	3		1,393	4	6x7	110	4,620	120	5,040	120	5,040	120	5,040
. .	27	3	3	33	4	2	1,400	3	5½x5½	280	8,540	200	6,050	190	5,747	240	7,930
2	40	10	23	73	4	.	1,978	3	4x6	300	7,200	410	9,840	350	4,800	340	8,160
. .	15	3	5	23	2	. .	484	2	4x5	. .	. . . .	. .	. . . .	. . .	. . . .	160	3,200
2	28	2	4	34	3	. .	1,456	2	7′ 4″ x 5′ 6″	145	5,847	150	6,049	140	5,640	145	5,847
4	30	4	4	38	2	. .	1,700	. .	. .	55	2,108	60	2,298	65	2,491	70	2,683
										60	2,902	60	2,902	50	2,415	70	3,386
. .	50	10	9	69	6	. .	2,107	2	6x6	. . .	2,880	. . .	2,600	. . .	4,500	. . .	3,240
. .	142	2	34	178	10	8	5,200	3	6x7	185	7,770	175	7,350	165	6,930	190	7,980
									5x3	190	2,850	195	2,925	200	3,000	180	2,700
									6x6	170	6,120	180	6,480	185	6,660	165	5,940
. .	29	5	15	49	3	2	917	2	6x4	240	5,760	230	5,520	235	5,640	330	7,920

* Bushels. † Not working.

A STATEMENT *of the Names, Power, Capacity, and Ventilation in the respective*

NAME OF COLLIERY.	Average velocity of air-current per month at inlet.	Number of headings.	VENTILATION. 1ST WEEK. Velocity of air current at or near face of heading.	1ST WEEK. Number of cubic feet per minute passing at or near face of head'g.	2D WEEK. Velocity of air current at or near face of heading.	2D WEEK. Number of cubic feet per minute passing at or near face of head'g.	3D WEEK. Velocity of air current per minute at or near face of heading.	3D WEEK. Number of cubic feet per minute passing at or near face of head'g.	4TH WEEK. Velocity of air current at or near face or heading.	4TH WEEK. Number of cubic feet per minute passing at or near face of head'g.
Hite, No. 2,		4	236	9,462	209	8,360	204	12,248	218	8,740
			175	6,502	128	4,645	175	8,170	194	7,205
			261	6,521	251	6,273	646	6,502	342	8,550
			413	16,010	403	15,544	384	14,822	460	17,738
Natrona Mine,		3	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .
Stewardson Furnace Mine,		1	90	4,050	96	4,320	100	4,500	96	4,320
Neshannock, No. 2,		2	160	4,800	162	4,860	159	4,770	163	4,890
Carbon Run Mine,		3	160	2,560	162	2,592	164	2,624	161	2,576
Orangeville Shaft,		1	199	3,420	195	3,510	200	3,600	195	3,510
Hamilton Mine,		1	65	2,600	*	. . . .	80	3,200	70	2,800
Soldier's Run Mine,		2	50	2,100	30	1,220	40	1,760	75	3,210
			50	2,200	30	1,220	40	1,760	75	3,210
Catfish Mine,			. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .
Lower Hillville,			50	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .
Stoneboro' Mine,			190	3,040	195	3,120	200	3,200	198	3,168
			160	3,200	160	3,200	150	3,000	150	3,000
			180	2,880	180	2,880	190	3,040	197	3,152
			170	2,720	165	2,640	180	2,880	180	2,880
Wise shaft,		2	185	4,532	200	4,900	175	4,287	180	4,410
			195	4,095	250	5,250	220	4,620	225	4,725
Home Bank, No. 1,			120	4,800	. . . .	. . . .	120	4,800	100	4,000
Pardoe Mine,		4	170	9,100	170	9,100	170	9,100	170	9,100
			100	3,000	130	3,900	130	3,900	140	4,200
Barnes' Mine,		3	110	3,400	120	3,600	120	3,600	110	3,300
			100	3,000	110	3,300	110	3,300	120	3,600
Burnette Bank,			70	2,840	73	2,966	76	3,192	79	3,318
Fairmount, No. 1,		5	150	3,750	100	2,500	125	3,125	110	2,750
			100	2,500	90	2,250	85	2,125	95	2,375
			75	1,875	95	2,375	85	2,125	90	2,250
			133	3,325	190	4,750	195	4,875	155	3,875
			200	5,000	185	4,625	205	5,125	190	4,750
Fairmount, No. 4,		3	90	3,645	80	3,240	85	3,442½	130	5,265
Cannelton Mine,		1	. . . .	. . . .	. . . .	. . . .	700	3,768	700	3,768
Clinton Mine,			200	2,800	220	3,080	240	3,360	200	2,800
Pancoast Mine,		4	80	3,260	70	1,940	30	1,260	50	2,100
Washington Mine,		3	90	4,050	100	4,500	100	4,500	100	4,500
Jackson Coal Mine,		3	560	6,720	350	4,200	355	4,260	450	5,400
Pacific Slope,		4	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .
Philadelphia Mine,		2	. .	. . . .	. . . .	. . . .	. .	. .	60	1,050
Oakland, No. 2,		2	150	3,807	100	2,534	150	2,400	140	2,240
			60	2,169	55	1,988	65	2,350	80	2,892
Oakland No. 3,		1	65	1,495	50	1,450	100	2,300	90	2,282
			150	2,386	200	2,682	165	2,528	150	2,208
Baker Bank,			. . . .	1,260	. . . .	1,620	. . . .	1,800	. . . .	1,440
Welsh Bank,		3	220	12,320	255	14,280	240	13,440	250	14,000
Maple Grove Mine,			70	2,100	65	1,950	68	2,040	75	2,250
			44	660	95	1,425	105	1,575	150	2,250

* Not working.

Collieries in the Second Bituminous Mine District of Pennsylvania—Continued.

Average velocity per minute for the month.	Outlet—size of—feet.	VENTILATION. 1ST WEEK. Velocity of air current per minute at outlet.	1ST WEEK. Number of cubic feet per minute passing out.	2D WEEK. Velocity of air current per minute at outlet	2D WEEK. Number of cubic feet per minute passing out.	3D WEEK. Velocity of air current per minute at outlet.	3D WEEK. Number of cubic feet per minute passing out.	4TH WEEK. Velocity of air current per minute at outlet.	4TH WEEK. Number of cubic feet per minute passing out.	Average number of feet passing out per month.	LOCATION.
. . .	60	612	36,765	565	33,915	517	31,065	666	39,960	. . . .	Allegheny county.
. . .	75	30	2,250	35	2,625	90	6,750	40	3,000	. . . .	do.
. . .	20	160	3,360	184	3,680	200	4,000	200	4,000	. . . .	Armstrong county.
. . .	. . . .	240	4,820	250	5,050	244	4,912	247	4,981	. . .	Mercer coun.y.
. . .	5 x 8	64	2,560	67	2,680	65	2,600	63	2,520	. . . .	do.
. . .	4 x 4	250	4,000	255	4,080	255	4,080	250	4,000	. . . .	do.
. . .	30	170	5,100	. .	. . . .	180	5,400	165	4,950	. . . .	Jefferson county.
	16			*		110	1,760	130	2,080		
. . .	6 x 6	100	3,600	50	1,800	75	2,340	100	3,600	. . . .	do.
. . .	6 x 5	70	2,100	75	2,250	75	2,250	75	2,250	. . . .	Clarion county.
	6 x 5	75	2,250	80	2,400	80	2,400	80	2,400		
. . .	$5\frac{1}{2}$x 5	60	1,620	75	2,025	60	1,620	50	1,375	. . . .	do.
. . .	22	390	8,580	395	8,690	390	8,580	400	8,800	. . . .	Mercer county.
	17	365	6,205	380	6,120	370	6,290	370	6,290		
. . .	7 x $3\frac{1}{2}$	360	8,220	400	9,800	380	9,310	390	9,555	. . . .	do.
. . .	5 x 6	200	6,000	. .	. . . .	200	6,000	180	5,400	. . . .	do.
. . .	30	500	15,000	490	14,700	500	15,000	520	15,600	. . . .	do.
. . .	30	180	5,400	180	5,400	180	5,400	180	5,400	. . . .	Butler county.
	20	200	4,000	220	4,400	220	4,400	220	4,400		
. . .	4 x 5	142	2,840	148	2,960	159	3,180	165	3,300	. . . .	do.
. . .	25	150	3,750	100	2,500	125	3,125	110	2,750	. . . .	Clarion county.
	25	100	2,500	90	2,250	85	2,125	95	2,375		
	25	75	1,875	95	2,375	85	2,125	90	2,250		
	25	133	3,325	190	4,750	195	4,875	155	3,875		
	25	200	5,000	185	4,625	205	5,125	190	4,750		
. . .	9 x $4\frac{5}{6}$	90	3,645	80	3,240	85	3,442$\frac{1}{2}$	130	5,265	. . .	do.
. . .	$2\frac{3}{4}$ x $6\frac{3}{4}$	. . .	. . .	. . .	. .	120	5,460	115	5,232	. . . .	Beaver county.
. . .	5 x 6	300	9,000	320	9,600	340	10,200	300	9,000	. . .	Lawrence county.
. . .	6 x 7	90	3,780	80	3,260	40	1,680	60	2,520	. . .	Jefferson county.
. . .	6 x 7	110	4,620	120	5,040	120	5,040	120	5,040	. . .	do.
. . .	5 x 4	432	8,640	305	6,100	285	5,700	420	8,400	. . .	Mercer county.
. .	5 x 6	250	7,500	340	10,200	290	8,700	280	8,400	. . .	do.
. . .	3 x 4	. .	. . . .	. . .	. . . .	. . .	. . . .	270	3,240	. . .	Venango county.
. . .	8′ 1″ x8′ 8″	130	5,778	140	6,223	130	5,787	135	6,000	. . .	Mercer county.
. . .	. . .	145	2,306	80	1,456	150	2,437	140	2,282	. . .	do.
		60	2,902	260	2,766	230	2,458	220	2,451		
. . .	5 x 6	. .	3,750	. . .	5,250	.	6,000	. . .	3,000	. . .	Beaver county.
. . .	6 x 6	345	12,420	360	12,960	350	12,600	340	12,240	. . .	Lawrence county.
. . .	5 x 5	405	10,125	390	9,750	400	10,000	410	10,250	. . .	Venango county.

* Not working.

A STATEMENT *of the Names, Power, Capacity, and Ventilation of the* *vania, for the Month*

NAME OF COLLIERY.	NAME OF OPERATOR.	Character of coal—bituminous or semi-bituminous.	Slope, shaft, or drift.	Pumps—how many.	Number of engines.	Horse power.
Pardoe Mine,	Mercer Mining and Manuf'g Co.,	Bituminous,	Drift,	2	1	30
Orangeville Shaft,	Morris Coal Company,	Bitum. block,	Shaft,	2	2	20 & 25
Coal Center Mine,	Bell, McClean & Stuchfield,	do.	do.	1	1	15
Home Bank, No. 1,	Buhl, Westerman & Co.,	do. do.	do.	1	1	50
Home Bank, No. 2,	do. do.	do. do.	do.	1	1	25
Hickory Shaft,	Spearman & Co.,	do. do.	do.	3	1	
Mansfield Mine,	I. F. Mansfield,	Bitum. cannel,	Drift,			
Jackson Coal Mine,	Jackson Coal Company,	Bituminous,	do.			
Stewardson Fur. Mine,	F. B. & A. Laughlin,	do.	do.			
Wise Shaft,	Snyder Coal Company,	Bitum. block,	Shaft,	2	1	40
Hamilton Coal Mine,	Hamilton Coal Company,	Bituminous,	Drift,			
Hite, No. 2,	P. Y. Hite,	do.	do.			
Clinton Mine,	Clinton Coal Company,	do.	do.			
Washington Mine,	Frank Williams,	do.	do.			
Catfish Mine,	Pittsburgh Coal and Mining Co.,	do.	do.			
Lower Hillville,	do. do.	do.	do.			
Welsh Bank,	Wampum Coal Company,	do.	do.			
Pacific Slope,	Dunham, Roberts & Co.,	Bitum. block,	Slope,	3	1	40
Sligo Branch,	Sligo Branch Coal Company,	Bituminous,	Drift,			
Neshannock, No. 2,	J. Phillips,	Bitum. block,	Shaft,	2	1	24
Fairmount, No. 1,	Fairmount Coal Company,	Bituminous,	Drift,			
Fairmount, No. 4,	Fairmount Coal Company,	do.	do.			
Oakland, No. 2,	Pierce, Frampton & Co.,	Bitum. block,	Shaft,	2	1	12 x 48
Oakland, No. 3,	Oakland Coal Company,	do. do.	do.	3	1	
Carbon Coal Mine,	Carbon Coal Company,	Bituminous,	Drift,			
Soldier Run Mine,	Powers, Brown & Co.,	do.	do.			
Natrona Mine,	Penn'a Salt Manufacturing Co.,	do.	do.	1	1	20
Stoneboro' Mine,	Mercer Iron and Coal Company,	do.	Slope,		1	75
Maple Grove Mine,	S. P. McCalmont,	do.	Drift,			
Barnes' Mine,	Mercer Mining and Manuf'g Co.,	do.	do.	2	1	8
Burnett Mine,	A. Burnett,	do.	do.	1		
Pancoast Mines,	Heim, Goodwill & F. Williams,	do.	do.			
Mineral Ridge Mine,	Mineral Ridge Coal Company,	do.	do.			
Bethel, No. 2,	Curtis and Boyce,	Bitum. block,	Shaft,	2	1	35
Baker Bank,	L. S. Hoyt, for Scott & Co.,	Bituminous,	Drift,			
Philadelphia Mine,	James Keuncdy,	do.	do.			
Davidson Mine,	J. B. Enos & Co.,	do.	do.			

respective Collieries in the Second Bituminous District of Pennsyl-
of September, 1879.

Boilers—how many.	Number of miners—men.	Number of miners—boys.	Other persons.	Total number of persons.	Number of mules inside.	Number of mules outside.	Total production in tons.	VENTILATION.								
										1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.	
								Number of openings.	Inlet—size of—feet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.
1	94	19	23	136	6	2	4,600	3	48	360	17,280	340	16,320	320	15,360	320	15,360
2	33	15	18	66	3	4	1,872	2	4x4	260	4,160	260	4,160	250	4,000	250	4,000
1	30	5	4	39	. .	. .	1,195½	3	42	70	2,940	75	3,150	80	3,360	70	2,940
5	25	6	3	34	2	. .	1,800	2	5¼x7	140	5,390	110	4,235	120	4,620	130	5,005
2	20	12	4	36	2	. .	1,450	. .	5x9	105	4,725	85	3,825	100	4,500	110	4,950
4	53	9	19	81	5	. .	2,417	2	4x5	. . .	9,000	. .	8,500	. . .	10,000	. . .	9,500
. .	19	1	1	21	1	1	500	2	. .	100	4,550	100	4,550	*		*	
. .	33	3	3	39	3	2	1,600	3	30⅛	280	8,540	240	7,930	280	8,540	200	6,050
. .	14	8	17	39	6	.	1,346	3	24	192	4,608	200	4,800	172	4,128	152	3,648
5	75	4	6	85	5	. .	4,000	2	7x6	200	8,400	195	8,190	200	8,400	200	8,400
. .	34	1	9	44	3	1	4,000	3	50	90	4,500	80	4,000	105	5,250	110	5,500
									50	40	2,000	35	1,750	60	3,000	45	2,250
. .	73	6	18	97	5	2	7,284	2	42	304	12,768	346	14,563	342	14,364	327	13,755
									38	384	14,620	460	17,508	422	16,945	470	17,695
. .	11	4	3	18	1	3	700	3	6x7	120	5,040	110	4,620	110	4,620	100	4,200
. .	19	5	7	31	3	. .	1,545	3	45	75	3,375	75	3,375	85	3,825	75	3,375
. .	45	14	4	63	4	. .	2,325	2	7x5	200	7,000	250	8,750	180	6,300	200	7,000
									7x5	200	7,000	175	6,125	225	7,875	160	5,600
. .	35	3	2	40	3	.	1,012	2	7½x6	250	11,250	150	6,750	200	9,000	210	9,450
. .	150	. .	35	185	9	6	5,500	3	6x7	180	7,560	195	8,190	190	7,980	185	7,770
									5x3	195	2,925	200	3,000	190	2,850	205	3,075
									6x6	175	6,300	165	5,940	175	6,300	170	6,120
2	40	10	23	73	4	. .	796	2	. .	340	8,160			. . .	. . .	370	8,880
. .	39	. .	9	48	3	. .	1,507	2	36	110	3,960	130	4,680	160	5,760	160	5,760
4	43	2	10	55	3	. .	1,800	2	5x8	120	4,800	118	4,720	124	4,960	116	4,640
. .	61	4	10	75	9	1	3,825	9	36	240	8,640	333	11,988	300	10,800	210	7,560
									36	200	7,200	195	7,020	200	7,200	190	6,840
									36	120	4,320	165	5,940	115	4,140	125	4,500
									36	100	3,600	93	3,348	105	3,780	80	2,880
. .	31	3	4	38	4	. .	1,165	3	36	150	5,400	135	4,860	165	5,940	140	5,040
2	26	1	7	34	3	. .	1,067	2	40	180	7,200	190	7,600	230	9,200	180	7,200
4	27	4	9	40	3	. .	1,660	. .	. . .	85	4,112	135	4,850	70	3,386	60	2,902
										70	2,683	75	2,874	80	3,066	70	2,683
. .	24	4	3	31	1	1	1,100	2	12	248	2,976	250	3,000	246	2,952	247	2,964
. .	20	1	6	27	2	. .	. . . .	2	7x7	50	2,450	40	1,960	50	2,450	50	2,450
1	32	5	10	47	10	1	. . . .	3	. .	73	7,884	. . .	. . .	. . .	. . .	30	3,240
1	150	20	20	190	10	. .	. . . .	2	32	270	8,640	290	9,280	280	8,960	410	9,020
									25	245	6,125	260	6,500	255	6,370	250	6,250
. .	27	5	13	45	3	2	928	2	24	229	5,496	210	5,040	155	3,720	260	6,240
1	92	16	24	132	6	4	6,300	14	30	150	4,500	140	4,200	140	4,200	140	4,200
									30	200	6,000	200	6,000	180	5,400	180	5,400
									20	100	2,000	100	2,000	90	1,800	90	1,800
1	30	3	2	35	1	2	1,200	2	. . .	100	4,700	105	4,910	95	3,990	93	4,116
. .	26	10	7	43	3	. .	2,222	3	45	139	6,255	139	6,255	153	6,885	139	6,255
									45	20	900	20	900	25	1,125	20	900
. .	60	5	4	69	4	1	3,293	3	7x7	50	2,450	150	7,350	100	4,900	75	3,675
									5x5	150	3,750	100	2,500	150	3,750	187	4,675
									7x5	100	3,500	200	7,000	200	7,000	75	2,625
3	30	2	10	42	2	. .	1,675	2	20	200	4,000						
. .	40	10	11	61	4	1	1,797	2	6x6	. . .	3,240	. . .	3,600	. . .	3,600	. . .	4,500
.	14	4	5	23	2	. .	241	2	4x5	. . .	. . . .	. . .	. . .	. . .	. . .	150	2,600
. .	35	10	15	60	4	2	1,000	3	3½x4½	100	1,575	120	1,890	120	1,890	110	1,731
									4x5	60	1,200	80	1,600	80	1,600	75	1,500

*No work.

A STATEMENT *of the Names, Power, Capacity, and Ventilation of the respective*

NAME OF COLLIERY.	Average velocity of air current per month at inlet.	Number of headings.	VENTILATION. 1ST WEEK. Velocity of air current at or near face of heading.	1ST WEEK. Number of cubic feet per minute passing at or near face of head'g.	2D WEEK. Velocity of air current at or near face of heading	2D WEEK. Number of cubic feet per minute passing at or near face of head'g.	3D WEEK. Velocity of air current per minute at or near face of heading.	3D WEEK. Number of cubic feet per minute passing at or near face of head'g.	4TH WEEK. Velocity of air current at or near face of heading.	4TH WEEK. Number of cubic feet per minute passing at or near face of head'g.
Pardoe Mine,			200	6,000	190	5,700	180	15,000	180	5,400
			160	4,800	160	4,800	140	4,200	150	4,500
Orangeville Shaft,		1	180	3,600	180	3,600	175	3,500	175	3,500
Coal Center Mine,		4	60	2,520	70	2,940	65	2,730	75	3,150
Home Bank, No. 1,			125	5,000	100	4,000	105	4,250	110	4,450
Home Bank, No. 2,			230	5,520	210	5,040	220	5,280	230	5,520
Hickory Shaft,		2		8,000		7,500		9,000		8,500
Mansfield Mine,			700	3,840	700	3,840				
Jackson Coal Mine,		4	550	6,600	560	6,720	540	6,480	450	5,400
Stewardson Furnace Mine,		1	80	3,600	100	4,500	80	3,600	60	2,700
Wise Shaft,		2	195	4.777	180	4,410	185	4,532	190	4,655
			300	6,300	290	6,090	280	5,880	300	6,300
Hamilton Coal Mine,			90	3,600	85	3,400	95	3,800	90	3,600
Hite, No. 2,		4	238	9,120	261	10,450	224	8,970	289	11,590
			147	5,448	175	6,512	156	5,799	194	7,205
			268	6,718	289	7,343	308	7,728	346	8,708
			441	16,609	479	18,470	432	17,441	480	18,436
Clinton Mine,			240	3,360	220	3,080	220	3,080	200	2,080
Washington Mine,		5	100	4,500	100	4,500	110	4,950	100	4,500
Catfish Mine,			180	6,300	225	7,875	150	5,250	150	5,250
			180	6,300	150	5,250	200	7,000	110	3,850
Lower Hillville,		1	230	9,660	130	5,460	180	7,560	200	8,400
Welsh Bank,		3	245	13,720	270	15,120	255	14,280	275	15,400
Pacific Slope,		4								
Sligo Branch,		5	82	2,480	150					
			70	1,400	72					
Neshannock, No. 2,		3	150	4,500	146	4,380	148	4,440	147	4,410
Fairmount, No. 1,		5	190	4,750	255	6,375	215	5,375	200	5,000
			155	3,875	133	3,325	180	4,500	150	3,750
			110	2,750	130	3,250	100	2,500	105	2,625
			90	2.250	83	2,075	95	2,375	85	2,125
Fairmount, No. 4,		3	75	1,875	70	1,750	90	2,250	85	2,125
Oakland, No. 2,			80	2,892	100	3,616	90	3,252	80	2,882
			150	2,193	320	4,620	310	4,476	150	2,193
Oakland, No. 3,			120	1,599	135	1,799	100	1,333	125	1,666
			105	2,940	110	3,080	90	1,749	180	2,800
Carbon Coal Mine,		3	130	2,600	134	2,680	128	2,560	131	2,620
Soldier Run Mine,		1	50	2,200	30	1,220	50	2,200	50	2,200
Natrona Mine,		3								
Stoneboro' Mine,		4	200	3,200	195	3,120	190	3,040	200	3,200
			190	3,800	160	3,200	160	3,200	175	3,500
			145	2,320	150	2,400	200	3,200	250	4,000
			200	3,200	210	3,300	180	2,880	150	2,400
Maple Grove Mine,			45	1,350	55	1,650	60	1,800	64	1,920
			50	750	90	1,350	87	1,305	94	1,410
Barnes' Mine,										
Burnett Mine,			100	4,700	105	4,910	95	3,990	98	4,116
Pancoast Mines,		6	60	2,700	60	2,700		3,150	60	2,700
Mineral Ridge Mine,		4	100	3,500	75	2,625	120	4,200	100	3,500
			75	2,625	50	1,750	100	3,500	75	2,625
			100	3,500	120	4,200	100	3,500	50	1,750
			120	4,200	150	5,250	150	5,250	120	4,200
Bethel, No. 2,			270	4,050						
Baker Bank,				1,530		1,620		1,620		1,800
Philadelphia Mine,									70	1,225
Davidson Mine,			75	937	80	1,000	70	875	75	937
			120	1,350	140	1,575	110	1,237	120	1,350
			120	1,350	140	1,575	110	1,237	120	1,350

Collieries in the Second Bituminous Mine District of Pennsylvania—Continued.

Average velocity per minute for the month.	Outlet—size of—feet.	VENTILATION. 1ST WEEK. Velocity of air current per minute at outlet.	1ST WEEK. Number of cubic feet per minute passing out.	2D WEEK. Velocity of air current per minute at outlet.	2D WEEK. Number of cubic feet per minute passing out.	3D WEEK. Velocity of air current per minute at outlet.	3D WEEK. Number of cubic feet per minute passing out.	4TH WEEK. Velocity of air current per minute at outlet.	4TH WEEK. Number of cubic feet per minute passing out.	Average number of feet passing out per month.	HOW VENTILATED.
. . . .	30	550	16,500	600	18,000	550	16,000	550	16,000	. . .	By furnace.
. . . .	16	250	4,000	250	4,000	240	3,840	240	3,840	. . . .	By fan.
. . . .	42	80	3,360	78	3,276	90	3,780	60	2,520	. . . .	By natural ventilation.
. . . .	5x 6	205	6,050	180	5 400	190	5,700	195	5,800	. . . .	By furnace and steam.
. . . .	5x 7	110	3,850	80	2,800	105	3,675	115	4,025	. . . .	By exhaust steam.
. . . .	5x 6	. .	9,000	. . .	8,500	. . .	10,000	. . .	9,500	. . . .	do.
. . . .	. .	100	3,850	110	4,235	.	. . .	. . .	. . .	. . . .	By furnace.
. . . .	20	430	8,600	400	8,000	425	8,500	305	6,100	. . . .	do.
. . . .	20	200	4,000	200	4,000	184	3,680	160	3,200	. . . .	By natural means.
. . . .	7x 3½	400	9,800	390	9,555	400	9,800	400	9,800	. . .	By steam jet.
. . . .	30	190	5,700	180	5,400	210	6,300	200	6,000	. . . .	By natural means.
	16	130	2,080	120	1,920	160	2,560	140	2.244		
. . . .	60	632	37,965	655	39,330	622	37,335	680	40,815	. . . .	By furnace.
. . . .	5x 6	340	10,200	320	9,600	320	9,600	300	9,000	. . .	By furnace.
. . . .	6x 7	120	5,040	120	5,040	130	5,460	120	5,040	. . . .	By natural ventilation.
. . . .	7x 5	165	5,775	140	4,900	125	4,375	160	5,600	. . . .	do.
	7x 5	150	5,250	150	5,250	150	5,250	150	5,250		
. . . .	7x 5	400	14,000	250	8,750	300	10,500	375	13,125	. . . .	do.
. . . .	6x 6	360	12,960	370	13,320	350	12,600	380	13,680	. . . .	By furnace.
. . . .	. .	290	8,700	.	. . .	.	. .	320	9,600	. . . .	do.
. . . .	25	200	4,800	200	4,800	230	5,520	250	6,250	. . . .	do.
. . . .	5x 12	76	4,560	75	4,500	80	4,800	74	4,440	. . . .	By exhaust steam.
. . . .	25	190	4,750	255	6,375	215	5,375	200	5,000	. . . .	By air shafts.
		155	3,875	133	3,325	180	4,500	150	3,750		
		110	2,750	130	3,250	140	2,500	105	2,625		
		90	2,250	83	2,075						
. . . .	25	75	1,875	70	1,750	95	2,375	85	2,125	. . . .	By furnace.
						90	2,250	85	2,125		
. . . .	. . .	170	7,442	180	7,880	190	8,318	170	7,442	. . . .	By exhaust steam.
. . . .	. .	130	2,555	140	. . .	. . .	2,472	. . .	1,942	. . . .	do.
		75	1,458	80			3,080		1,652		
. . . .	5x 8	66	2,640	68	2,720	64	2,560	67	2,680	. . . .	By air shaft.
. . . .	6x 6	100	3,600	50	1,800	100	3,600	100	3,600	. . . .	By natural ventilation.
. . . .	75	62	4,650		. . . .	. .			. .	. . . .	do.
. . . .	22	420	9,240	400	8,800	410	9,020	390	8,580	. . .	By two furnaces.
	17	360	6,120	380	6,460	350	5,950	380	6,460		
. . . .	5x 5	535	13,375	490	12,250	475	11,875	505	12,625	. . . .	By furnace.
. . . .	20	400	8,000	400	8,000	370	7,400	360	7,200	. . . .	By exhaust steam.
	25	200	5,000	200	5,000	160	4,000	160	4,000		
	30	150	4,500	150	4,500	140	4,200	140	4,200		
. . . .	4x 5	235	4,700	245	4,900	200	4,000	206	4,120	. . . .	By exhaust steam.
. . . .	6x 7	90	3,780	90	3,780	100	4,200	90	3,780		
. . . .	5x 5	300	7,500	500	12,500	375	9,375	375	9,375	. . . .	By two furnaces.
	7x 7	150	7,350	150	7,350						
	5x 5	100	2,500	100	2,500						
. . . .	13	320	4,160	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	By exhaust steam.
. . . .	5x 6	. .	3,750	. . .	4,200	. . .	4,350	. . .	5,250	. . . .	By furnace.
. . . .	3x 4	. . .	. . .	. . .	. . .	. . .	. . . .	350	4,200	. . . .	do.
. . . .	4½x 6	120	3,280	125	3,375	130	3,510	120	3,280	. . . .	do.

A STATEMENT *of the Names, Power, Capacity, and Ventilation of the*
vania, for the Month

NAME OF COLLIERY.	NAME OF OPERATOR.	Character of coal—bituminous or semi-bituminous.	Slope, shaft, or drift.	Pumps—how many.	Number of engines.	Horse power.
Paneoast Mine,	Heim, Goodwill & F. Williams,	Bituminous,	Drift,			
Philadelphia Mine,	James Kennedy,	do.	do.			
Fairmount Mine,	Fairmount Coal Company,	do.	do.			
Fairmount Mine,	Fairmount Coal Company,	do.	do.			
Fairmount, Mine, No. 4,	Fairmount Coal Company,	do.	do.			
Soldier Run Mine,	Powers, Brown & Co.,	do.	do.			
Maple Grove Mine,	S. P. McCalmont,	do.	do.			
Bethel, No. 2,	Curtis & Boyee,	Bitum. bloek,	Shaft,	2	1	35
Orangeville Shaft,	Morris Coal Company,	do. do.	do.	2	2	20 25
Home Bank, No. 2,	Buhl, Westerman & Co.,	do. do.	do.	1	1	26
Hamilton Mine,	Hamilton Coal Company,	Bituminous,	Drift,			
Natrona Mine,	Penn Salt Manufaeturing Co.,	do.	do.	1	1	20
Hickory Shaft,	Spearman & Co.,	Bitum. bloek,	Shaft,	3	1	20
Oakland Shaft, No. 2,	Pieree, Frampton & Co.,	do. do.	do.	2	1	
Oakland Shaft, No. 3,	Oakland Coal Company,	Bitum. bloek,	do.	3	1	
Welsh Bank,	Wampum Coal Company,	Bituminous,	Drift,			
Barues' Mine,	Mercer Mining and Manuf'g Co.,	Bituminous,	do.	2	1	12
Hite, No. 2,	P. Y. Hite,	do.	do.			
Neshannoek, No. 2,	J. Phillips & Co.,	Bitum. bloek,	Shaft,	1	1	20
Carbon Coal Mine,	Carbou Coal Company,	Bituminous,	Drift,			
Piue Run Mine,	Stephenson & Mitchell,	do,	do.			
Sligo Braneh Mine,	Sligo Braneh Coal Company,	do.	do.			
Pardoe Mine,	Mercer Mining and Mauuf'g Co.,	do.	do.	2	1	30
Wise Shaft,	Snyder Coal Company,	Bitum. block,	Shaft,	2	1	40
Jaekson Coal Mine,	Jaekson Coal Company,	Bituminous,	Drift,			
Washington Mine,	Frank Williams,	do.	do.			
Davidson Drift.	Addison Davidson,	do.	do.			
Mineral Ridge Coal Mine,	T. J. Skidmore,	do.	do.			
Mansfield Mine,	I. F. Mansfield,	Bitum. Cannel,	do.			
Cliuton Mine,	Cliuton Coal Company,	Bituminous,	do.			
Stoneboro' Mines,	Mereer Iron & Coal Company,	do.	Slope,		1	75
Pacifie Slope,	Dunham, Roberts & Co.,	Bitum. bloek,	do.	3	1	40
Coal Centre,	Johu Bell & Co.,	Bituminous,	Shaft,	1	1	15
Catfish Mine,	Pittsburgh Coal & Miuiug Co.,	do.	Drift,			
Lower Hillville,	Pittsburgh Coal & Miuing Co.,	do.	do.			
Davidson Mine,	W. B. Enos & Co.,	do.	do.			
Burnette Mine,	A. Burnette,	do.	do.			
Baker Bank,	L. S. Hoyt,	do.	do.			

respective Collieries in the Second Bituminous Mine District of Pennsyl-
of October, 1879.

Boilers—how many.	Number of miners—men.	Number of miners—boys.	Other persons.	Total number of persons.	Number of mules inside.	Number of mules outside.	Total production in tons.	VENTILATION.									
										1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.	
								Number of openings.	Inlet—size of—feet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.
. .	25	8	8	41	3	. .	2,542	3	6x7	90	3,780	100	4,200	100	4,200	120	5,040
. .	14	6	5	25	2	. .	461	3	12	. .	. .	. .	. .	. .	. .	170	2,040
. .	71	4	12	87	10	. .	4,365	9	36	200	7,200	200	7,200	185	6,660	205	7,380
									36	120	4,320	125	4,500	110	3,960	110	3,960
. .	. . .	. .	. . .	. . .	. .	. .	. . . .	. .	36	333	11,988	300	10,800	280	10,080	350	12,600
									36	190	6,840	190	6,840	150	5,400	133	4,788
. .	35	3	3	41	3	.	1,340	3	12x6	145	10,440	150	10,800	140	10,080	155	11,160
. .	30	2	5	37	2	. .	. . . .	2	7x7	50	2,450	30	1,470	40	1,960	No mining	
. .	32	5	17	54	4	2	784	2	6x4	190	4,560	205	4,920	210	5,040	200	4,800
3	27	8	9	44	2	2	1,240	2	20	450	9,000	470	9,400	No work.		470	9,400
2	29	16	20	65	3	4	1,949	2	4x4	260	4,160	280	4,480	280	4,480	300	4,800
2	22	7	5	34	1	. .	1,656	1	5x9	200	9,000	140	6,300	140	6,300	150	6,750
. .	45	2	10	57	3	1	4,500	3	50	90	4,500	80	4,000	95	4,750	100	5,000
									50	40	2,000	35	1,750	45	2,250	60	3,000
1	32	6	10	48	10	1	2,610	4	108	30	3,240	30	3,240	35	3,780	40	4,320
4	64	9	20	93	6	. .	3,721	2	4x5	. . .	9,000	. . .	9,500	. . .	10,000	. . .	10,000
2	32	1	7	40	3	. .	1,558	2	7′5″ x 5′6″	200	8,066	210	8,469	250	10,080	210	8,409
4	29	2	10	41	2	. .	1,342	1	5′6″ x 7′8″	80	3,066	70	2,683	75	2,874	60	2,599
									8′8″ x 5′8″	70	3,346	80	3,646	75	3,712	60	2,991
. .	70	. .	18	88	6	4	3,800	3	6x7	195	8,190	185	7,770	180	7,560	175	7,350
									5x3	200	3,000	210	3,150	220	3,300	215	3,225
									6x6	185	6,660	170	6,120	165	5,940	180	6,480
1	90	14	14	118	6	4	6,350	16									
. .	84	4	18	106	7	2	7,927	2	42	337	14,185	301	12,673	357	14,164	337	14,164
									38	422	16,064	341	16,784	475	17,869	465	17,689
4	38	3	7	48	3	. .	1,905	2	12x5	78	4,680	84	5,040	90	5,400	85	5,100
. .	14	2	5	21	1	1	700	2	3x4	260	3,120	268	3,276	275	3,300	265	3,180
. .	18	2	4	24	1	1	824	. .	7x6								
									7x6								
. .	30	. .	8	38	3	. .	965	2	36	200	7,200	250	8,750	210	7,560	240	8,640
1	93	19	16	128	7	2	5,400	3	30	280	14,000	300	15,000	320	16,000	330	16,500
									50								
5	75	6	6	87	5	. .	5,000	2	7x6	155	6,510	160	6,720	200	8,400	210	8,820
. .	35	4	3	42	3	3	1,600	3	$5\frac{1}{4}$x$5\frac{1}{2}$	240	7,530	280	8,540	400	12,100	500	15,125
. .	20	5	8	33	3		1,810	4	6x7	90	3,780	110	4,620	110	4,620	120	5,040
. .	10	2	2	14	1	. .	300	2	32	214	6,857	214	6,857	250	8,000	300	9,600
. .	61	8	6	75	5	1	2,936	3	7x7	100	4,900	120	5,880	75	3,675	100	4,900
									5x5	250	6,250	200	5,000	150	3,750	259	6,250
									7x5	100	3,500	100	3,500	250	7,000	120	4,200
. .	15	2	2	19	1	1	1,000	2	38	180	6,840	145	5,582	140	5,390	160	6,160
. .	14	4	4	22	2	3	500	3	6x7	100	4,200	120	5,040	110	4,620	130	5,460
1	150	20	20	190	10	. .	5,677	2	20	400	8,000	380	7,600	400	8,000	410	8,200
									25	130	3,250	170	3,800	200	5,000	210	5,250
2	42	10	23	75	4	. .	2,599	3	24	460	11,040	330	7,920	460	11,040	530	12,720
1	30	3	4	37	. .	. .	1,214	3	42	95	3,990	85	3,570	80	3,360	85	3,570
. .	45	15	4	64	5	. .	2,415	. .	7x5	225	7,875	275	9,625	160	5,600	300	10,500
									7x5	200	7,000	220	7,700	200	7,000	250	8,750
. .	35	4	2	41	3	. .	1,280	2	$7\frac{1}{2}$x6	125	5,625	100	4,500	200	9,000	210	9,450
. .	45	15	14	74	4	2	1,600	2	$15\frac{3}{4}$	80	1,260	60	945	85	1,338	80	1,260
									20	70	1,400	40	800	65	1,300	70	1,400
1	35	2	1	38	1	2	1,000	2	$6\frac{1}{2}$x$6\frac{1}{2}$	200	8,400	230	9,660	180	7,560	210	8,820
. .	60	10	12	82	5	1	2,705	2	6x6	200	7,200	220	7,920	250	9,000	240	8,640

A STATEMENT *of the Names, Power, Capacity, and Ventilation of the respective*

NAME OF COLLIERY.	VENTILATION.									
			1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.	
	Average velocity of air current per month at inlet.	Number of headings.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current per minute at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.
Pancoast Mine,		6	20	900	20	900	30	1,350	40	1,800
			60	2,700	70	3,150	60	2,750	70	3,150
Philadelphia Mine,		2								
Fairmount Mine,		5	190	4,750	185	4,625	150	2,750	187	4,675
			100	2,500	110	2,750	100	2,500	105	2,625
Fairmount Mine,			300	7,500	250	6,250	220	5,500	300	7,500
			112	2,800	135	3,375	133	3,325	120	3,000
Fairmount Mine, No. 4,		3	130	3,250	135	3,375	133	3,325	140	3,500
Soldier Run Mine,		1	50	2,200	35	1,220	40	1,760	Not running.	
Maple Grove Mine,			45	1,350	40	1,200	47	1,410	43	1,290
			53	1,590	50	1,500	40	1,200	37	1,110
Bethel, No. 2,			310	7,750	330	8,250	No	work.	330	8,250
Orangeville Shaft,			200	3,200	210	3,360	210	3,360	240	3,840
Home Bank, No. 2,			250	6,000	220	5,280	210	5,040	215	5,160
Hamilton Mine,		2	100	4,000	96	3,600	100	4,000	80	3,200
									80	3,200
Natrona Mine,										
Hickory Shaft,				8,000		8,500		9,000		9,000
Oakland Shaft, No. 2,			240	5,280	260	5,720	340	7,480	250	5,500
			110	4,015	125	4,462	140	5,110	115	4,197
Oakland Shaft, No. 3,		2	100	1,800	100	1,800	110	1,980	90	1,620
			100	1,400	110	1,618	115	1,691	105	1,544
Welsh Bank,		3	260	14,560	255	14,280	275	15,400	275	15,400
Barnes' Mine,										
Hite, No. 2,			242	9,690	232	9,310	261	10,450	228	9,120
			161	5,975	137	5,146	185	6,854	178	6,621
			266	9,310	213	7,481	270	9,476	250	8,778
			431	16,622	470	18,104	441	17,007	458	17,661
Neshannock, No. 2,			140	4,200	155	4,650	163	4,890	158	4,740
Carbon Coal Mine,			138	2,760	140	2,800	136	2,720	134	2,680
Pine Run Mine,										
Sligo Branch Mine,		6	75	1,800	120	2,860	150	3,600	140	3,660
			80	1,600	70	1,400	80	1,600	85	1,100
Pardoe Mine,		4	180	5,400	180	5,400	200	6,000	200	6,000
			100	3,000	110	3,300	120	3,600	130	3,900
			200	6,000	200	6,000	220	6,600	230	6,900
Wise Shaft,		2	200	4,900	180	4,410	195	8,190	200	8,400
			180	7,560	185	7,770				
Jackson Coal Mine,		6	300	6,000	355	7,100	400	8,000	520	10,400
Washington Mine,		5	70	3,150	90	4,050	90	4,050	100	4,500
Davidson Drift,			$166\frac{2}{3}$	5,000	$165\frac{2}{3}$	5,000	$187\frac{1}{2}$	5,625	$187\frac{1}{2}$	5,625
Mineral Ridge Coal Mine,		4	85	2,975	100	3,500	75	2,625	100	3,500
			125	4,375	75	2,625	50	1,750	85	2,975
			100	3,500	50	1,750	50	1,750	75	2,625
			300	10,500	150	5,250	100	3,500	200	7,000
Mansfield Mine,		1	700	3,840	700	3,840	700	3,840	700	3,840
Clinton Mine,			200	2,800	240	3,360	220	3,080	240	3,360
Stoneboro' Mines,			90	1,800	200	3,200	100	2,000	110	2,200
			100	1,800	140	2,520	140	2,240	170	2,700
			120	2,400	130	2,600	140	1,100	150	2,700
							150	3,000	180	3,600
Pacific Slope,		4								
Coal Centre,		5	65	1,560	65	1,560	70	1,680	65	1,560
Catfish Mine,			200	7,000	250	8,750	150	5,250	280	9,800
			190	6,600	200	7,000	190	6,600	230	8,050
Lower Hillville,			115	4,025	95	3,325	190	6,650	200	7,000
Davidson Mine,		3	75	937	60	750	80	1,000	70	875
			80	880	75	825	85	935	85	935
			100	1,100	80	880	95	1,045	90	990
Burnette Mine,		2	200	8,400	210	8,220	230	9,660	180	7,560
Baker Bank,				3,500		4,140		5,400		4,500

Collieries in the Second Bituminous District of Pennsylvania.—Continued.

VENTILATION.											
		1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.			
Average velocity per minute for the month.	Outlet—size of—feet.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Average number of feet passing out per month.	LOCATION.
. . .	5x9	150	6,750	177	7,965	177	7,965	187	8,415	. . . .	Jefferson county.
. . .	12	. .	. . . .	. . .	. .	. .	. . . .	300	3,600	. . . .	Venango county.
. . .	25	190	4,750	185	4,625	150	3,750	187	4,675	. . . .	Clarion county.
	25	100	2,500	110	2,750	100	2,500	105	2,625		
. . .	25	300	7,500	250	6,250	220	5,500	300	7,500	. . . .	do.
	25	112	2,800	135	3,375	133	3,325	120	3,000		
. . .	25	130	3,250	135	3,375	133	3,325	140	3,500	. . . .	do.
. . .	6x6	100	3,600	60	2,160	80	2,800	No	work.	. . . .	Jefferson county.
. . .	5x5	420	10,500	450	11,250	467	11,675	437	10,925	. . . .	Venango county.
. . .	14	640	8,960	660	9,240	No	work.	660	9,240	. . . .	Mercer county.
. . .	4x4	250	4,000	216	4,160	260	4,160	280	4,480	. . . .	do.
. . .	5½x8	170	7,480	115	5,060	120	5,280	125	5,500	. . . .	do.
. .	30	185	5,550	180	5,400	190	5,700	210	6,300	. . . .	Jefferson county.
	16	110	1,760	60	1,280	110	1,760	120	1,920		
. . .	75	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . . .	Allegheny county.
. . .	5x6	. . .	9,000	. . .	9,500	.	10,000	. . .	10,000	. . . .	Mercer county.
. . .	8 x 1	160	7,000	170	7,437	240	10,500	170	7,437	. . . .	do.
	5 x 5										
. . .	4′ 7″ x 6′ 10″	105	3,307	100	3,150	110	3,460	95	2,922	. . . .	do.
. . .	4½ x 5	200	3,532	205	3,532	200	3,532	190	3,355	. . .	do.
	6 x 6	375	13,500	370	13,320	385	13,860	380	13,680	. . . .	Lawrence county.
. . .	. . . .	. . .	. .	. . .	. .	. .	. . . .	. . .	. .	. . . .	Butler county.
. .	60	612	37,065	669	40,085	688	41,325	631	37,905	. . . .	Allegheny county.
. . .	5 x 8	110	4,400	120	4,800	125	5,000	115	4,600	. . . .	Mercer county.
. . .	8 x 5	72	2,830	75	3,000	78	3,120	76	3,020	. . . .	do.
. . .	5 x 4	. . .	. . . .	. . .	. . . .	. . .	. . .	. . .	. . .	. . . .	Clarion county.
	5 x 4										
. . .	25	300	7,500	350	8,750	300	7,500	330	8,250	. . . .	do.
. . .	30	500	15,000	500	15,000	550	16,500	600	18,000	. . . .	Mercer county.
. . .	7 x 3½	350	8,575	360	8,220	400	9,800	400	9,800	. . . .	do.
. . .	4 x 6	300	7,200	345	8,280	500	12,000	620	14,880	. . . .	do.
. . .	4 x 9	150	6,750	177	7,965	177	7,965	187	8,415	. . . .	Jefferson county.
. . .	4 x 5	375	7,500	375	7,500	500	10,000	500	10,000	. . . .	Beaver county.
. . .	5 x 5	500	12,500	350	8,750	375	9,375	450	11,250	. . . .	Clarion county.
. . .	45½	110	5,005	100	5,005	120	5,460	120	5,460	. . . .	Beaver county.
. . .	5 x 6	300	9,000	320	9,600	340	10,120	380	11,400	. . . .	Lawrence county.
. . .	22	390	8,580	350	7,700	400	8,800	400	8,800	. . . .	Mercer county.
	17	400	6,800	340	5,780	400	6,800	400	6,800		
. . .	30	340	10,200	280	8,400	375	11,250	440	13,200	. . . .	do.
. . .	42	95	3,990	90	3,780	85	3,570	90	3,780	. . . .	Lawrence county.
. . .	7 x 5	190	6,600	250	8,750	190	6,600	200	7,000	. . . .	Clarion county.
. . .	7 x 5	200	7,000	300	10,500	250	8,750	210	7,350		
. . .	7 x 5	170	5,850	150	5,250	320	11,200	375	13,125	. . . .	do.
. . .	27	125	3,375	100	2,700	130	3,510	120	3,240	. . . .	Lawrence county.
. . .	4 x 5	420	8,400	411	8,220	483	9,660	378	7,560	. . . .	Butler county.
. . .	30	300	9,000	320	9,600	375	11,250	350	10,500	. . . .	Beaver county.

A STATEMENT *of the Names, Power, Capacity, and Ventilation of the* *vania, for the Month*

NAME OF COLLIERY.	NAME OF OPERATOR.	Character of coal—bituminous or semi-bituminous.	Slope, shaft, or drift.	Pumps—how many.	Number of engines.	Horse power.
Pancoast Mine,	Helm, Goodwill & F. Williams,	Bituminous,	Drift,			
Washington Mine,	F. Williams,	do.	do.			
Mineral Ridge Mine,	T. J. Skidmore,	do.	do.			
Pacific Slope.	Dunham, Roberts & Co.,	Bitum. block,	Slope,	3	1	40
Stewardson Furn. Mine,	F. B. & A. Laughlin,	Bituminous,	Drift,			
Orangeville Shaft,	Morris Coal Company,	Bitum. block,	Shaft,	2	2	25
Hickory Shaft,	Spearman & Co.,	do. do.	do.	3	1	20
Baker Bank,	L. S. Hoyt,	Bituminous,	Drift,			
Coal Centre,	Bell, Stuchfield & McClean,	do.	Shaft,	1	1	15
Wise Shaft,	Snyder Coal Company,	Bitum. block,	do.	2	1	40
Lower Hillville,	Pittsburgh Coal and Mining Co.,	Bituminous,	Drift,			
Catfish Mine,	do. do.	do.	do.			
Stoneboro' Mine,	Mercer Iron and Coal Company,	do.	Slope,		1	75
Stoneboro' Mine,		do.				
Natrona Mine,	Penn Salt Manufact'g Company,	do.	Drift,	1	1	20
Welsh Bank,	Wampum Coal Company,	do.	do.			
Bethel, No. 2,	Curtis & Boyce,	Bitum. block,	Shaft,	2	1	35
Oakland, No. 2,	Pierce, Frampton & Co.,	do. do.	do.	1	1	
Oakland, No. 3,	Oakland Coal Company,	do. do.	do.	2	1	
Hoffman Slope,	Hoffman & Co.,	do. do.	Slope,	2		
Hite, No. 2,	P. Y. Hite,	Bituminous,	Drift,			
Hite, No. 2,	do.	do.	do.			
Bellevue Mine,	do.	do.	do.	1	1	10
Neshannock, No. 2,	J. Phillips & Co.,	Bitum. block,	Shaft,	1	1	20
Carbon Mine,	Carbon Coal Company,	Bituminous,	Drift,			
Barnes' Mines,	Mercer Mining and Manuf'g Co.,	do.	do.	2	1	8
Pardoe Mines,	Mercer Mining and Manuf'g Co.,	do.	do.	2	1	25
Jackson Coal Mines,	Jackson Coal Company,	do.	do.			
Clinton Mine,	Clinton Coal Company,	do.	do.			
Beaver Mines,	Lee & Patterson,	do.	do.	2		
Pine Run,	Stephenson & Mitchell,	do.	do.			
Soldier Run Mine,	Powers, Brown & Co.,	do.	do.			
Fairmount, No. 1,	Fairmount Coal Company,		do.			
Fairmount, No. 1,	do. do.	Bituminous,	do.			
Fairmount, No. 4,	do. do.	do.	do.			
Beaver Block,	James Sutherin,	do.	do.			
Hamilton Mine,	Hamilton Coal Company,	do.	do.			
Sligo Branch,	Sligo Branch Coal Company,	do.	do.			
Davidson Beaver Fall,	Addison Davidson,	do.	do.			
Burnett Mine,	A. Burnett,	do.	do.	1		
Duncan Coal Mine,	Duncan Coal Company,	Bitum. block,	Shaft,	1	1	25
Maple Grove Mine,	S. P. McCalmont,	Bituminous,	Drift,			
Davidson Mine,	W. B. Enos & Co.,	do.	do.			
New Bethlehem Mine,	Sandy Lick Coal Company,	do.	do.			

respective Colleries in the Second Bituminous Mine District of Pennsyl-
of November, 1879.

Boilers—how many.	Number of miners—men.	Number of miners—boys.	Other persons.	Total number of persons.	Number of mules inside.	Number of mules outside.	Total production in tons.	VENTILATION.								
										1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.	
								Number of openings.	Inlet—size of—feet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet	Velocity of air current per minute at inlet	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.
. .	27	7	7	39	3	. .	2,193	3	6x7	90	3,780	100	4,200	100	4,200	120	5,040
. .	18	7	6	31	3	. .	1,608	4	6x7	90	3,780	110	4,620	110	4,620	120	5,040
. .	65	10	6	81	5	1	2,578	3	7x7	200	9,800	100	4,900	75	2,625	120	5,880
									5x5	250	6,250	250	6,250	200	5,000	150	3,750
									7x5	100	3,500	200	7,000	150	5,250	125	4,375
2	42	10	23	75	4	. .	2,342	3	7x6	420	10,080	420	10,080	400	9,600	380	9,120
									4x6								
. .	14	10	17	41	6	. .	1,397	2	24	180	4,320	192	4,608	200	4,800	224	5,376
2	22	16	20	58	2	5	1,355	2	4x4	270	4,320	280	4,480	. . .	. . . .	270	4,320
4	71	11	22	104	7	. .	2,775	2	4x5	.	9,200	. .	9,300	. .	10,000	. . .	9,500
. .	75	12	12	99	6	1	3,850	2	6x6	225	8,100	250	9,000	300	10,800	300	10,800
1	32	4	5	41	. .	. .	1,319	2	6x7	95	3,990	85	3,570	90	3,780	85	3,570
5	76	6	6	88	6	. .	4,500	2	7x6	220	9,240	240	10,080	235	9,870	230	9,660
. .	42	3	3	48	3	. .	1,344	2	$7\frac{1}{2}$x6	150	6,750	160	7,200	200	9,000	150	6,750
. .	50	15	5	70	. .	. .	2,415	2	7x5	230	8,050	270	9,450	160	5,600	300	10,500
									7x5	200	7,000	220	7,700	200	7,000	250	8,750
1	150	22	20	192	11	. .	6,140	2	20	390	7,800	395	7,900	410	8,200	400	8,000
									25	140	3,500	130	3,250	135	3,375	150	3,750
1	28	3	11	42	10	1	1,834	3	108	30	3,240	30	3,240	60	6,480	30	3,240
. .	60	. .	9	69	6	4	1,600	3	6x7	200	8,400	180	7,770	200	8,400		
									5x3	210	3,150	215	3,225	220	3,300		
									6x3	180	6,480	165	5,940	185	6,660		
2	30	9	10	49	2	2	1,231	2	20	460	9,200	No	work.	460	9,200	460	9,200
2	35	1	7	43	2	. .	1,318	2	$7\frac{1}{2}$x$5\frac{1}{2}$	240	9,679	250	10,082	230	9,275	300	12,099
4	26	2	9	37	2	. .	808	1	$7\frac{3}{4}$x5	80	3,066	95	3,601	140	5,366	120	4,599
1	12	2	7	21	2	2	401	3									
. .	92	6	18	116	7	2	7,525	2	42	318	13,366	283	11,929	327	13,765	318	13,366
. .	. .	. .	. .	. .	.	.	. .	. .	38	422	16,064	384	14,612	512	19,484	498	18,950
1	30	. .	4	34	3	. .	1,346	2	37	. . .	. . . .	. . .	. . . .	235	8,695	229	8,473
									45					175	7,875	158	7,110
4	40	4	6	50	2	. .	1,500	2	5x12	90	5,400	80	4,800	85	5,100	92	5,520
. .	22	4	4	30	1	1	1,200	2	3x4	260	3,120	265	3,180	275	3,300	268	3,216
1	91	19	21	131	7	4	5,600	13	30	100	3,000	90	2,700	100	3,000	100	3,000
									30	200	6,000	180	5,400	190	5,700	200	6,000
									20	250	5,000	200	4,000	210	4,200	250	5,000
. .	94	18	23	135	6	2	5,000	3	20	500	15,000	470	14,160	400	12,000	400	12,000
									25	200	5,000	200	5,000	200	5,000	180	4,500
. .	35	7	4	46	3	3	1,655	3	$5\frac{1}{6}$x$5\frac{1}{9}$	400	12,100	432	13,068	439	13,279	442	13,370
. .	18	4	5	27	2	3	1,100	3	6x7	100	4,200	100	4,200	110	4,620	120	5,040
1	98	21	25	144	9	6	4,146	2	5x7	300	10,500	275	9,625	250	8,750	275	9,625
. .	30	6	5	41	2	2	1,432	2	6x6	60	2,160	70	2,520	60	2,160	50	1,800
									6x6	75	2,700	70	2,520	75	2,700	70	2,520
. .	42	3	9	54	3	. .	. . . .	2	7x7	150	7,350	150	7,350	150	7,350	150	7,350
. .	67	4	12	83	10	.	4,462	4	6x6	300	10,800	333	11,988	295	10,620	300	10,800
									6x6	190	6,840	240	8,640	216	7,776	200	7,200
. .	. . .	. .	. . .	. . .	. .	. .	. .	. .	6x6	150	5,400	133	4,788	125	4,500	120	4,320
									6x6	220	7,920	230	8,280	215	7,740	250	9,000
. .	40	3	4	47	4	. .	1,607	3	6x8	150	7,200	165	7,920	143	6,864	155	7,440
. .	30	1	2	33	.		1,600	2	7x6	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	7,200
. .	50	4	10	64	4	1	3,500	3	50	110	5,500	80	4,000	100	5,000	120	6,000
									50	40	2,000	30	1,500	50	2,500	50	2,500
. .	31	. .	9	40	3	. .	1,232	2	36	200	7,200	200	7,200	204	7,344	200	7,200
. .	9	1	. .	10	2	. .	310	2	$5\frac{1}{3}$x6								
1	33	2	2	37	1	2	1,000	2	$6\frac{1}{3}$x$6\frac{1}{3}$	105	4,410	100	4,200	90	3,780	120	5,040
1	37	5	6	48	1	. .	2,100	1	6x6								
. .	40	4	13	57	4	2	1,002	2	6x4	178	4,272	207	4,968	214	5,136	225	5,400
. .	50	15	14	79	4	2	1,600	2	$15\frac{3}{4}$	90	1,470	85	1,338	80	1,260	90	1,470
									20	80	1,600	75	1,500	70	1,400	80	1,600
. .	30	.	3	33	1	1	. . . .	2	6x7	95	3,990	110	4,620	90	3,780	120	5,040

A STATEMENT *of the Names, Power, Capacity, and Ventilation in the respective*

NAME OF COLLIERY.	Average velocity of air current per month at inlet.	Number of headings.	VENTILATION. 1ST WEEK. Velocity of air current at or near face of heading.	1ST WEEK. Number of cubic feet per minute passing at or near face of head'g.	2D WEEK. Velocity of air current at or near face of heading.	2D WEEK. Number of cubic feet per minute passing at or near face of head'g.	3D WEEK. Velocity of air current per minute at or near face of heading.	3D WEEK. Number of cubic feet per minute passing at or near face of head'g.	4TH WEEK. Velocity of air current at or near face of heading.	4TH WEEK. Number of cubic feet per minute passing at or near face of head'g.
Pancoast Mine,		6	60	2,700	70	3,150	60	2,700	70	3,150
			20	900	20	900	30	1,350	40	1,800
Washington Mine,		5	70	3,150	90	4,050	90	4,050	100	4,200
Mineral Ridge Mine,			120	4,200	185	6,475	150	5,250	120	4,200
			100	3,500	150	5,250	100	3,500	150	5,250
			100	3,500	120	4,200	75	2,625	100	3,500
Pacific Slope,		4								
Stewardson Furnace Mine,		1	80	3,600	90	4,050	80	3,600	100	4,500
Orangeville Shaft,			190	3,420	200	3,600			195	3,510
Hickory Shaft,		4		8,200		8,300		9,000		8,500
Baker Bank,		5	200	3,600	225	4,050	275	4,950	275	4,950
Coal Centre,		5	70	1,680	60	1,440	65	1,650	60	1,440
Wise Shaft,		2	200	4,900	210	5,145	200	4,900	210	5,145
			190	7,980	190	7,980	185	7,770	190	7,980
Lower Hillville,		1	140	5,880	145	6,090	180	7,560	140	5,880
Catfish Mine,			210	7,350	250	8,750	140	4,900	280	9,800
			180	6,300	200	7,000	180	6,300	220	7,700
Stoneboro' Mine,		4	95	1,900	90	1,800	100	2,000	90	1,800
			110	1,980	160	2,560	150	2,400	160	2,560
Stoneboro' Mine,			160	3,200	145	2,610	130	2,350	140	2,520
					140	2,800	125	2,500	150	3,000
Natrona Mine,		3								
Welsh Bank,		3	290	16,240	285	15,960	390	16,800		
Bethel, No. 2,			340	8,500	*		340	8,500	340	8,500
Oakland, No. 2,		2	160	5,840	100	3,650	120	4,380	105	3,832
Oakland, No. 3,		2	100	3,163	110	3,479	140	4,428	125	3,953
Hoffman Slope,										
Hite, No. 2,		5	251	10,070	232	9,310	80	3,230	104	6,580
			166	6,151	118	4,750	180	4,227	187	6,928
Hite, No. 2,			289	10,141	156	5,488	227	9,500	241	9,670
			479	18,470	431	16,605	420	4,232	545	5,107
							280	7,987	194	7,491
Bellevue Mine,		3					65	4,355	59	3,953
							55	2,530	61	2,806
							32	2,240	37	2,590
Neshannock, No. 2,		2	170	5,100	150	4,500	155	4,650	175	5,250
Carbon Mine,		3	140	2,800	145	2,900	137	2,740	150	3,000
Barnes' Mine,										
Pardoe Mines,		4	150	4,500	160	4,800	175	5,250	160	4,800
			100	3,000	100	3,000	110	3,300	120	3,600
Jackson Coal Mines,		4	400	8,000	520	10,400	550	11,000	570	11,400
Clinton Mine,			20	2,800	200	2,800	220	3,080	246	3,360
Beaver Mines,		2	400	8,400	375	7,875	350	7,350	375	7,875
			200	7,000	175	6,125	150	5,250	175	6,125
Pine Run,			35	1,050	40	1,200	35	1,050	30	900
			40	1,200	40	1,200	40	1,200	40	1,200
Soldier Run Mine,		2	200	8,000	200	8,000	200	8,000	200	8,000
Fairmount, No. 1,		4	217	5,475	225	5,625	233	5,825	225	5,625
			133	3,325	200	5,000	170	4,250	175	4,375
Fairmount, No. 1,		4	100	2,500	120	3,000	112	2,900	110	2,750
			200	5,000	180	4,500	193	4,825	200	5,000
Fairmount, No. 4,		3	120	3,000	125	3,125	118	2,950	133	3,325
Beaver Block,										
Hamilton Mine,		3	80	3,200	70	2,800	80	3,200	100	4,000
			70	2,800	70	2,800	90	3,600	80	3,200
Sligo Branch,		6	220	5,280	180	4,320	200	4,800	195	4,680
			110	2,220	110	2,200	130	2,600	125	2,500

Collieries in the Second Bituminous Mine District of Pennsylvania—Continued.

Average velocity per minute for the month.	Outlet—size of—feet.	VENTILATION. 1ST WEEK. Velocity of air current per minute at outlet.	1ST WEEK. Number of cubic feet per minute passing out.	2D WEEK. Velocity of air current per minute at outlet.	2D WEEK. Number of cubic feet per minute passing out.	3D WEEK. Velocity of air current per minute at outlet.	3D WEEK. Number of cubic feet per minute passing out.	4TH WEEK. Velocity of air current per minute at outlet.	4TH WEEK. Number of cubic feet per minute passing out.	Average number of feet passing out per month.	LOCATION.
. . . .	5x9	150	6,750	177	7,965	177	7,965	187	8,415	. . .	Jefferson county.
. . . .	6x7	150	6,750	177	7,965	177	7,965	187	8,415	. . . .	Jefferson county.
. . . .	5x5	375	9,375	375	9,375	300	7,500	500	12,500	. . .	Clarion county.
. . . .	5x6	370	18,100	480	14,400	350	10,500	320	9,600	. . . .	Mercer county.
. . . .	20	184	3,680	200	4,000	220	4,400	232	4,610	. . . .	Armstrong county.
. . . .	4x4	260	4,160	270	4,320	. . .	. . . .	260	4,160	. . . .	Mercer county.
. . . .	5x6	. . .	9,200	. . .	9,300	. . .	10,000	. . .	9,500	. . .	Mercer county.
. . . .	5x6	325	9,750	350	10,500	375	11,250	400	12,000	. . . .	Beaver county.
. . . .	6x7	95	3,990	85	3,570	90	3,780	75	3,150	. . . .	Lawrence county.
. . . .	7x3½	430	10,535	450	11,025	440	10,780	430	10,535	. . . .	Mercer county.
. . . .	7x5	140	4,900	140	4,930	310	10,850	260	9,100	. . .	Clarion county.
. . . .	7x5	170	5,950	250	8,750	180	6,300	200	7,000	. . . .	Clarion county.
. . . .	7x5	200	7,000	300	10,500	250	8,750	220	7,700	. . . .	
. . . .	22	410	9,020	400	8,800	450	8,910	390	8,690	. . .	Mercer county.
. . . .	17	380	6,460	390	6,630	400	6,800	340	5,780	. . . .	Mercer county.
. . . .	75	40	3,000	. . .	. . . .	50	5,750	. . .	. . . .	. . . .	Allegheny county.
. . . .	6x6	380	13,680	375	13,500	385	13,860	. . .	. .	. . . .	Lawrence county.
. . . .	14	570	7,980	No	work.	570	7,980	570	7,980	. . . .	Mercer county.
. . . .	8′1″ x 5′5″	200	8,750	220	9,675	240	11,600	205	8,963	. . . .	Mercer county.
. . . .	4′4″ x 5′3″	170	3,062	140	2,472	210	3,780	200	3,532	. . . .	Mercer county.
. . . .	. . .	. . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	Mercer county.
. . . .	. . .	641	38,475	612	36,765	660	39,615	612	36,765	. . . .	Allegheny county.
. . . .	59	. . .	. . . .	. . .	. . . .	330	19,470	324	19,116	. . . .	Allegheny county.
. . . .	5x8	130	5,200	120	4,800	122	4,880	134	5,360	. . . .	Mercer county.
. . . .	8x5	72	2,880	75	3,000	69	2,760	78	3,120	. . .	Mercer county.
. . . .	30	230	6,900	240	7,200	240	7,200	220	6,600	. . . .	Butler county.
	10	100	1,200	120	1,200	120	1,200	100	1,000		
	30	100	3,000	110	3,300	100	3,000	110	3,300		
	20	70	1,400	80	1,600	70	1,400	70	1,400		
. . . .	50	500	25,000	400	20,000	420	21,000	430	21,500	. . . .	Mercer county.
. . . .	4x6	500	12,000	540	12,960	560	13,440	560	13,440	. . . .	Mercer county.
. . . .	5x6	300	9,000	300	9,000	320	9,600	340	10,200	. . . .	Lawrence county.
. . . .	3′8″ x 5′6″	650	13,000	625	12,500	600	12,000	625	12,500	. . . .	Lawrence county.
. . . .	5x5	60	1,500	60	1,500	60	1,500	50	1,250	. . . .	Clarion county.
	5x4	70	1,400	60	1,200	70	1,400	60	1,200		
. . . .	7x5	400	14,000	400	14,000	400	14,000	400	14,000	. . . .	Jefferson county.
. . . .	25	219	5,475	225	5,625	233	5,825	225	5,625	. . . .	Clarion county.
	25	133	3,325	200	5,000	170	4,250	175	4,375		
. . . .	25	100	2,500	120	3,000	112	2,900	110	2,750	. . . .	Clarion county.
	25	200	5,000	180	4,500	193	4,825	200	5,000		
. . . .	25	120	3,000	125	3,125	118	2,950	133	3,325	. . . .	Clarion county.
. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	7,200	. . . .	Beaver county.
. . . .	30	190	5,700	180	5,400	200	6,000	190	5,700	. . . .	Jefferson county.
	16	110	1,760	100	1,600	140	2,240	150	2,400		
. . . .	25	350	8,750	320	8,000	380	9,500	375	9,250	. . . .	Clarion county.

A STATEMENT *of the Names, Power, Capacity, and Ventilation of the respective*

NAME OF COLLIERY.	VENTILATION.									
			1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.	
	Average velocity of air current per month at inlet.	Number of headings.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.
Davidson Beaver Fall,	....	....	....	....	....	....	....	....	....	....
Burnett Mine,	....	2	100	4,210	95	3,990	90	3,780	115	4,830
Duncan Coal Mine,	....	1	....	....	....	....	....	....	....	....
Maple Grove Mine,	....	....	50	1,500	63	1,890	75	2,250	78	2,340
			62	1,860	68	2,040	74	2,220	79	2,370
Davidson Mine,	....	3	170	2,060	175	2,185	180	2,250	160	2,000
			160	1,760	165	1,815	160	1,760	150	1,650
			160	1,760	165	1,815	160	1,760	150	1,650
New Bethlehem Mine,	....	....	90	3,780	95	3,990	80	3,360	90	3,780

* No work.

Collieries in the Second Bituminous Mine District of Pennsylvania.—Continued.

VENTILATION.											LOCATION.
		1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.			
Average velocity per minute for the month.	Outlet—size of—feet.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Average number of feet passing out per month.	
. . . .	4x5	. . .	. . . .	. . .	. . . .	. .	. . . .	. .	. . . .	. . . .	Beaver county.
. . . .	$4\frac{1}{2}$x$4\frac{1}{2}$	. . .	4,210	199	3,980	189	3,780	. . .	4,820	. . . .	Butler county.
. . . .	7x6	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . . .	Mercer county.
	7x6										
. . . .	5x5	412	10,300	418	10,450	425	10,625	407	10,175	. . . .	Venango county.
. . . .	27	190	5,730	200	5,400	250	6,750	200	5,400	. . . .	Lawrence county.
. . . .	6x7	95	3,990	120	5,040	100	4,200	130	5,460	. . . .	Armstrong county.

A STATEMENT *of the Names, Power, Capacity, and Ventilation of the*
vania, for the Month

NAME OF COLLIERY.	NAME OF OPERATOR.	Character of coal—bituminous or semi-bituminous.	Slope, shaft, or drift.	Pumps—how many.	Number of engines.	Horse power.
Stewardson Fur. Mine,	F. B. & A. Laughlin,	Bituminous,	Drift,			
Natrona Mine,	Penn Salt Manufacturing Co.,	do.	do.	1	1	20
Davidson Beaver Falls,	Addison Davidson,	do.	do.			
Hamilton Mine,	Hamilton Coal Company,	do.	do.			
Belleview Mine,	P. Y. Hite,	do.	do.	1	1	10
Hoffman Mine,	Hoffman Brothers,	Bitum. block,	Slope,	2		
Orangeville Shaft,	Morris Coal Company,	do. do.	Shaft,	2	2	20
Soldier Run,	Powers. Brown & Co.,	Bituminous,	Drift,			25
Oakland Shaft, No. 2,	Pierce Frampton & Co.,	Bitum. block,	Shaft,	2	1	
Oakland Shaft, No. 3,	Oakland Coal Company,	do. do.	do.	2	1	
Hite Mine, No. 2,	P. Y. Hite,	Bituminous,	Drift,			
Mansfield Mine,	I. F. Mansfield,	Bi'um. cannel,	do.			
Fairmount, No. 1,	Fairmount Coal Company,	Bituminous,	do.			
Fairmount, No. 1,	do. do.	do.	do.			
Fairmount, No. 4,	do. do.	do.	do.			
Hickory Shaft,	Hickory Coal Company,	Bitum. block,	Shaft,	3	1	20
Sligo Branch Mine,	Sligo Branch Coal Company,	Bituminous,	Drift,			
Coal Center Mine,	Neshanuock Coal Company,	do.	Shaft,	1	1	15
Stoneboro' Mine,	Mercer Iron and Coal Company,	do.	Slope,		1	75
Stoneboro' Mine,	do. do.	do.	do.			
Pacific Slope,	Dunham, Roberts & Co.,	Bitum. block,	do.	3	1	40
Clinton Mine,	Clinton Coal Company,	Bituminous,	Drift,			
Wise Shaft,	Snyder Coal Company,	Bitum. block,	Shaft,	2	1	40
Baker Bank,	L. S. Hoyt,	Bituminous,	Drift,			
Pine Rnn Mine,	Pine Run Coal and Mining Co.,	do.	do.			
Reimerton Mine,	Reimerton Coal and Mining Co.,	do.	do.			
Pancoast Mines,	Heims, Goodwill & F. Williams,	do.	do.			
Washington Mine,	F. Williams,	do.	do.			
Jackson Mine,	Jackson Coal Company,	do.	do.	1		
Mineral Ridge Mine,	T. J. Skidmore,	do.	do.			
Mineral Ridge Mine,	do.	do.	do.			
Neshannock, No. 2,	John Phillips & Co.,	Bitum. block,	Shaft,	1	1	20
Pardoe Mine,	Mercer Mining and Manuf'g Co.,	Bituminous,	Drift,	2	1	25
Barnes' Mine,	do. do.	do.	do.	2	1	15
Home Bank, No. 2,	Buhl, Westerman & Co.,	Bitum. block,	Shaft.	1	1	25
Maple Grove,	S. P. McCalmont,	Bituminous,	Drift,			
Welsh Bank,	Wampum Coal Company,	do.	do.			
Catfish Mine,	Pittsburgh Coal and Mining Co.,	do.	do.			
Lower Hillville,	do. do.	do.	do.			
Beaver Mines,	Lee & Patterson,	do.	do.	2		
Bethel Shaft, No. 2,	Curtis & Boyce,	Bitum. block,	Shaft,	2	1	35
New Bethlehem,	Sandy Lick Coal Company,	Bituminous,	Drift,			
Beaver Block,	James Sutherin,	do.	do.			
Duncan Shaft,	Duncan Coal Company,	Bitum. block,	Shaft,	1	1	25
Davidson Mine,	W. B. Enos & Co.,	Bituminous,	Drift,			

respective Collieries in the Second Bituminous Mine District of Pennsyl-of December, 1879.

Boilers—how many.	Number of miners—men.	Number of miners—boys.	Other persons.	Total number of persons.	Number of mules inside.	Number of mules outside.	Total production in tons.	VENTILATION.									
										1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.	
								Number of openings.	Inlet—size of—feet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.
. .	15	9	25	49	6	. .	1,443	2	24	192	4,608	225	5,400	180	4,320	225	5,400
1	33	3	11	47	10	1	2,9 7	4	108	35	3,880	60	6,480	30	3,240	30	3,240
. .	10	1	1	12	2	. .	300	2	32	214	6,857	187	6,000	214	6,857	214	6,857
. .	70	4	10	84	4	2	5,500	3	50	120	6,000	130	6,500	100	5,000	150	7,500
									50	50	2,500	60	3,000	40	2,000	60	3,000
1	32	. .	4	36	4	. .	2,035	2	37	220	8,140	210	7,770	220	8,140	186	6,882
									45	150	6,750	140	6,300	170	7,650	197	8,865
2	10	2	7	19	2	2	452	3	5x5	. . .	. . . .	. . .	4,000	. . .	3,500	. .	4,000
2	21	15	19	55	3	4	1,098	2	4x4	265	4,240	260	4,160				
.	59	1	12	63	5	. .	. . . .	2	7x7	150	7,350	150	7,350	150	7,350	150	7,350
2	27	2	3	32	1		1,571	2	7½x5½	355	14,207	340	13,212	250	10,082	300	12,099
4	23	4	7	34	2		965	1	7½x5	150	5,749	135	5,175	140	5,366	160	6,132
. .	96	4	19	119	6	2	5,444	2	42	213	8,977	213	8,977	289	12,169	252	10,615
									33	402	15,306	525	19,988	432	16,435	431	16,406
. .	20	2	2	24	2	1	500	2	. . .							120	5,005
. .	66	3	11	80	10	1	4,286	. .	36	240	8,640	210	7,560	260	9,360	230	8,280
									36	400	14,400	300	10,800	333	11,988	220	7,920
. .	. . .	.	. . .	. .	. . . .	. . . .	. . .	. .	35	200	7,200	200	7,200	190	6 840	200	7,200
									36	150	5,400	145	5,220	185	6,660	133	4 785
. .	41	2	6	49	5	. .	1,615	2	48	120	5,760	110	5,280	135	6,480	1.5	5,520
4	76	10	21	107	7	. .	3,637	2	4x5	. . .	10.500	. .	10,300	. . .	10,000	. . .	10,000
. .	38	1	10	49	4	. . .	1,662	2	36	230	8,280	250	9,000	220	7,920	220	7,920
1	35	5	5	45		. .	2,300	3	6x7	75	3,150	80	3,360	85	3,570	65	2,730
1	160	20	24	204	11	. .	6,490	2	25	350	8,750	370	9,250	360	9,000	365	9,125
. .	. . .	. .	.	.		. .	.	. .	25	170	4,250	160	4,000	155	3,875	165	4,125
2	48	8	23	79	4		2,495	2	. . .	210	7,661	250	9,000	400	9,600	350	8,400
.	45	10	8	63	5	6	2,200	3	6x7	100	4,200	120	5,040	110	4,620	120	5,040
									5x6	110	3,300	120	3,600	120	3,600	110	3,300
5	75	5	4	84	6	.	4,500	2	7x6	250	10,900	240	10,080	230	9,660	245	10,290
.	75	15	12	102	6	1	3,840	2	6x6	250	9,000	250	9,000	300	10,800	325	11,700
. .	38	6	6	50	2	2	2,3 8	2	6x6	60	2,160	70	2,520	70	2,520	75	2,700
									6x6	75	2,700	70	2,520	75	2,700	75	2,700
. .	16	2	6	24	1	1	350	2	6x7								
. .	33	7	5	45	3	. .	2,997	3	6x7	100	4,200	90	3,780	120	5,040	100	4,200
. .	20	5	4	29	3	.	1,789	3	6x7	110	4,620	90	3,780	120	5,040	110	4,620
. .	35	7	4	46	3	3	1,580	3	5½x5½	400	12,100	442	13,370	432	13,068	439	13 279
. .	70	12	13	95	7	1	2,809	3	7x7	100	4,900	100	4,900	150	7,350	150	7,350
									5x5	200	5,000	150	3,750	200	5,000	187	4,675
.	. . .	. .	. . .	. . .	. . .	. .	. . .		7x5	200	7,000	300	10,500	100	3.500	100	3.5 0
4	40	2	6	48	2	. .	1,300	2	5x12	90	5,400	95	5,700	88	5,280	94	5,640
1	104	19	14	137	6	2	4,924	3	30	600	18.000	550	16,5 0	600	18,000	500	15,000
									30	400	12,000	450	13,500	300	9,000	300	9,000
1	98	29	13	131	6	4	6,068	13	30	180	5,400	200	6,000	200	6,000	180	5 40
									20	150	3,000	150	3,000	150	3,000	150	3,000
									20	200	4,000	180	3,600	180	3,600	183	3.6 0
									16	100	1,600	120	1,920	120	1,920	120	1,920
2	46	14	8	68			2,993	1	5x9	140	6,300	150	6,750	135	6 975	145	6,525
. .	41	4	18	63	4	2	1,334	2	6x4	212	5.088	208	4,992	197	4.728	202	4.848
. .	92	.	18	110	6	4	2,659	3	6x7	190	7,980	180	7,560	200	8,4 0	175	7,350
									5x3	220	3.300	225	3,375	200	3,0 0	225	3 375
									6x6	180	6,480	190	6,840	175	6,300	180	6,480
. .	50	14	4	68	. .		2,490	2	6x5	300	9,000	200	6,000	240	7.200	190	5,700
									6x5	220	6,600	250	7,500	220	6,6 0	220	6,600
.	42	3	2	47	3		1,620	2	7x6	150	6,300	160	6,720	120	5,040	160	6,720
1	100	6	25	141	9	6	4,076	2	5x7	200	7,000	250	8,750	225	7,875	240	8,400
2	37	4	12	63	1	2	1,879	.	20	3 0	6,000	300	6,000	300	6,0 0	300	6,000
.	27	. .	4	31	1	1	. .	2	6x7	80	3,360	90	3,780	110	4,620	40	1,680
.	30	4	1	35	2	.	1,100	.	9x7								
1	32	4	4	40	2	. .	2,200	. .	. . . .	. . . .	. . . .	. . . .	. . . .	. .	3,200	. . .	3,300
															3,000		3,000
. .	50	20	14	84	4	2	1,800	2	15¾	80							
									20	70							

A STATEMENT *of the Names, Power, Capacity, and Ventilation of the respective*

NAME OF COLLIERY.	VENTILATION.									
			1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.	
	Average velocity of air current per month at inlet.	Number of headings.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current per minute at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.
Stewardson Furnace Mine,		1	80	3,600	90	4,050	80	3,600	90	4,050
Natrona Mine,		2								
Davidson Beaver Falls Mine			166⅔	5,000	150	4,500	166⅔	5,000	150	4,500
Hamilton Mine,			120	4,800	110	4,400	100	4,000	130	5,200
			100	4,000	90	3,600	80	3,200	120	4,800
Bellevue Mine,		3	72	4,854	64	4,288	65	4,355	58	3,826
			48	3,696	48	3,696	65	5,000	70	5,390
			32	2,240	77	5,390	80	5,600	61	4,270
Hoffman Mine.			100	2,500	100	2,500	100	2,500	100	2,500
Orangeville Shaft,		1	210	3,780	200	3,600				
Soldier Run,		1	200	8,000	200	8,000	200	8,000	200	8,000
Oakland Shaft, No. 2,										
Oakland Shaft, No. 3,		2	150	2,800	160	2,890			140	2,613
Hite Mine, No. 2,		5	63	2,546	51	2,052	137	5,510	82	3,306
			233	8,648	171	6,468	90	3,379	87	3,249
			223	8,830	188	9 180	270	10,830	194	7,790
			642	5,780	598	5,386	650	5,856	622	5,600
			166	6,400	274	10,544	270	10,423	156	6,034
Mansfield Mine,									700	3,840
Fairmount, No. 1,		4	200	5,000	185	4,625	215	5,375	200	5,000
			215	5,375	220	5,500	240	6,000	190	4,750
Fairmount, No. 1,			180	4.500	150	3,750	150	3,750	180	4,500
			133	3,325	130	3,250	140	3,500	135	3,375
Fairmount, No. 4,		1	105	3,780	95	3,420	115	4,140	105	3,780
Hickory Shaft.		3		9,500		9,300		9,000		9,000
Sligo Branch Mine.			250	6,000	230	5,520	200	4,800	200	4,800
			150	3,000	160	3,200	100	2,000	110	2,200
Coal Centre Mine.		5								
Stoneboro' Mine,		4	100	2,000	110	2,200	95	1,900	105	2,100
			110	1,980	120	2,160	100	1,800	110	1,980
Stoneboro' Mine,			160	3,020	170	3,400	140	2,800	150	3,000
			200	3,200	190	3,040	170	2,720	160	2,560
Pacific Slope,		4								
Clinton Mine,			200	2,400	200	2,400	220	2,640	220	2,640
			200	3,600	200	3,600	220	3,960	220	3,960
Wise Shaft,		2	215	9,490	210	8,820	200	8,400	190	7,980
			200	4,900	190	4,655	180	4,410	185	4,537
Baker Bank,		5	225	4,050	275	4,950	300	5,400	300	5,400
Pine Run Mine,			40	1,200	40	1,200	40	1,200	40	1,200
			40	1,200	40	1,200	45	1,350	45	1,350
Reimerton Mine,		1								
Pancoast Mines,			70	3,150	60	2,700	70	3,150	60	2,700
			20	900	20	900	40	1,800	30	1,350
Washington Mine,		5	90	4,050	70	3,150	100	4,500	90	4,050
Jackson Mine,			406	8,120	510	10,200	540	10,800	570	11,400
Mineral Ridge Mine,			100	3,500	120	4,200	100	3,500	120	4,200
			150	5,250	100	3,500	150	5,250	150	5,250
Mineral Ridge Mine,			120	4,200	150	5,250	120	4,200	100	3,500
			120	4,200	200	7,000	150	5,250	187	6,585
Neshannock, No. 2,		3	240	4,800	250	5,000	255	5,100	260	5,200
Pardoe Mine,		4	400	12,000	300	9,000	300	9,000	350	10,500
			200	6,000	200	9,000	250	7,500	250	7,500
Barnes' Mine,		3	150	4,500	120	3,600	140	4,200	140	4,200
Home Bank, No. 2.			210	5,040	200	4,800	200	4,800	195	4.68
Maple Grove,			62	1,860	59	1,770	49	1,470	52	1,56
			73	2,190	71	2,130	67	2,010	68	2.04
Welsh Bank,		3	290	16,240	300	16,800	310	17,360	285	15,96

Collieries in the First Bituminous Mine District of Pennsylvania—Continued.

VENTILATION.										
		1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.		
Average velocity per minute for the month.	Outlet—size of—feet.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Average number of feet passing out per month.	WHERE LOCATED.
. . .	20	200	4,000	250	5,000	192	3,840	250	5,000	4,460	Armstrong county.
. . .	75	. .	. . .	53	3,975	. . .	. . .	50	3,750	. . . .	Allegheny county.
. . .	20	375	7,500	375	7,500	500	10,000	500	10,000	. . . .	Beaver county.
. . .	30	200	6,000	180	5,400	160	4,800	220	6,600	. . . .	Jefferson county.
	16	140	2,240	150	2,400	120	1,920	130	2,080		
. . .	59	297	17,523	285	16,815	290	17,110	275	16,225	. . .	Allegheny county.
. . .	. . . .	. .	. . . .	. .	.	.	5,000	. . .	5,500	. . .	Mercer county.
. . .	4x4	240	3,840	240	3,840	. .	. . . .	. . .	. . .	. . . .	do.
. . .	7x5	400	14,000	400	14,000	400	14,000	400	14,000	. . . .	Jefferson county.
. . .	5′ 5″ x 8′ 1″	230	10,062	220	9,625	160	7,000	260	11,138	. . .	Mercer county.
. . .	4′ 0″ x 4′ 5″	205	3,622	215	3,798	200	3,533	220	3,883	. . . .	do.
. . .	60	574	34,685	655	39,330	764	45,885	631	37,905	. . . .	Allegheny county.
. . .	. . .	. . .	. . . .	. . .	. . .	. . .	. .	110	5,005	. . . .	Beaver county.
. . .	25	200	5,000	185	4,625	215	5,375	200	5,000	. . . .	Clarion county.
	25	215	5,375	220	5,500	240	6,000	190	4,750		
. . .	25	180	4,500	150	3,750	150	3,750	180	4,500	. . . .	do.
	25	133	3,325	130	3,250	140	3,500	135	3,375		
. . .	36	105	3,780	95	3,420	115	4,140	105	3,780	. . .	do.
. . .	5x6		10,500	. . .	10,300	. . .	10,000	. . .	10,000	. . .	Mercer county.
. . .	25	350	8,750	380	9,500	360	9,000	350	8,750	. . . .	Clarion county.
. . .	6x7	80	3,360	75	3,150	65	2,730	75	3,150	. . . .	Lawrence county.
. .	22	400	8,800	410	9,020	395	8,690	420	9,240	. . .	Mercer county.
. . .	17	320	5,440	330	5,610	310	5,270	350	5,950	. . . .	do.
. . .	5x6	300	9,000	330	9,930	380	11,400	340	10,200	. . . .	do.
. . .	5x6	300	9,000	320	9,600	320	9,600	360	10,800	.	Lawrence county.
. . .	7x3½	470	11,515	480	11,860	460	11,270	470	11,515	. . . .	Mercer county.
. . .	5x6	325	9,750	375	11,250	375	11,250	400	12,000	. .	Beaver county.
. . .	5x5	60	1,500	60	1,500	70	1,650	60	1,500	. . . .	Clarion county.
	5x4	70	1,400	60	1,200	70	1,400	70	1,400		
. . .	3½x6	. . .	. .	. . .	. . .	. . .	. .	. .	. . .	. . .	Armstrong county.
. . .	5x9	177	5,965	150	6,750	187	8,415	177	5,965	. . . .	Jefferson county.
. . .	5x9	177	5,965	150	6,750	187	8,415	177	5,965	. . . .	do.
. . .	4x6	500	12,000	520	12,480	530	12,720	560	13,420	. . . .	Mercer county.
. . .	5x5	500	12,500	500	12,500	375	9,375	375	9,375	. . .	Clarion county.
. . .	. . .	. . .	. . . .	. . .	. . . .	.	. . . .	. .	. . .	. . . .	do.
. . .	5x8	130	5,200	134	5,360	126	5,040	132	5,280	. . . .	Mercer county.
. . .	50	600	30,000	550	27,500	600	30,000	580	29,000	. . .	do.
. . .	24	320	7,680	400	9,600	320	7,600	340	8,160	. . . .	Butler county.
	30	100	3,000	120	3,600	100	3,000	110	3,300		
	30	120	3,600	120	3,600	130	3,900	120	3,600		
. . .	5x8	170	6,800	180	7,200	185	7,400	175	7,000	. . . .	Mercer county.
. . .	5x5	505	12,625	525	13,150	499	12,475	500	12,500	. . .	Venango county.
. . .	6x6	360	12,960	365	13,140	370	13,320	360	12,960	. . .	Lawrence county.

A STATEMENT *of the Names, Power, Capacity, and Ventilation of the respective*

NAME OF COLLIERY.	VENTILATION.									
			1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.	
	Average velocity of air current per month at inlet.	Number of headings.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current per minute at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of herd'g.
Catfish Mine,			280	8,400	190	5,700	220	6,600	180	5,400
			200	6,000	240	7,200	200	6,000	200	6,000
Lower Hillville,			140	5,880	150	6,300	110	4,620	150	6,300
Beaver Mines,			200	8,400	250	10,500	225	9,450	230	9,660
			200	8,400	250	10,500	225	9,450	230	9,660
			350	7,350	400	8,400	375	7,875	380	7,980
Bethel Shaft, No. 2,			300	5,700	300	5,700	300	5,700	300	5,700
New Bethlehem,		2	60	2,520	60	2,520	75	3,150	. .	. .
Beaver Block,			. .	. .	. .	. .	. .	. .	. .	. .
Duncan Shaft,			. .	. .	. .	. .	. .	3,000	. .	3,100
								2,900		2,900
Davidson Mine,			75	937	80	1,000	. .	. .	. .	. .
			120	1,320	130	1,430				
			100	1,100	120	1,320				

Colleries in the Second Bituminous Mine District of Pennsylvania—Continued.

VENTILATION.											
		1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.			
Average velocity per minute for the month.	Outlet—size of—feet.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Average number of feet passing out per month.	WHERE LOCATED.
. . .	6x5	160	4,800	160	4,800	160	4,800	180	5,400	. . .	Clarion county.
	6x5	150	4,500	250	7,500	150	4,500	150	4,500		
. . .	7x5	220	7,700	230	8,050	190	6,650	230	8,050	. . .	do.
. . .	4x5	650	13,000	700	14,000	675	13,500	680	13,600	. . . .	Lawrence county.
. . .	15	400	6,000	400	6,000	400	6,000	400	6,000	. . .	Mercer county.
. . .	6x7	80	3,360	80	3,360	100	4,200	50	2,100	. . . .	Armstrong county.
. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. .	. . .	Beaver county.
. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	4,000	. . .	4,300	. . . .	Mercer county.
							3,600		3,800		
. . .	27	200	5,400	240	7,480	230	6,210	210	5,670	. . . .	Lawrence county.

THIRD DISTRICT.—William L. Richards, Inspector.

To the Honorable A. K. DUNKEL,

Secretary of Internal Affairs:

SIR: I have the honor to present herewith my third annual report for the Third Bituminous Coal District of Pennsylvania, comprising the counties of Cambria, Blair, Huntingdon, Centre, Clearfield, Elk, Cameron, McKean, Potter, Clinton, Lycoming, Bradford, and Tioga.

In presenting my third annual report, it is with pleasure that I have to announce a general revival of business among the coal operators of my district. In going over my district, renewed life and activity can now be seen among the collieries. Every mine I visit at the present time presents a busy scene, everything in and about the mines is being repaired and put in order. Old mines that have not been worked for years are being reopened, repaired, and all the necessary steps taken to get coal out as soon as possible for the market. Our railroads are taxed to their utmost to get the freight over their roads, and the coal operators find some difficulty in getting the necessary cars to ship their coal to market. All this indicates that our country is once more resuming its normal condition, and that trade and the various industries of our nation are once more in active operation.

One of the most important of our industries is the mining of coal, and especially bituminous coal. The activity of the coal trade at once indicates the revival of all other industries, for it is to them, what the sun is to the earth, the great source of light and heat, and when put in its active form, sets the whole machinery in motion.

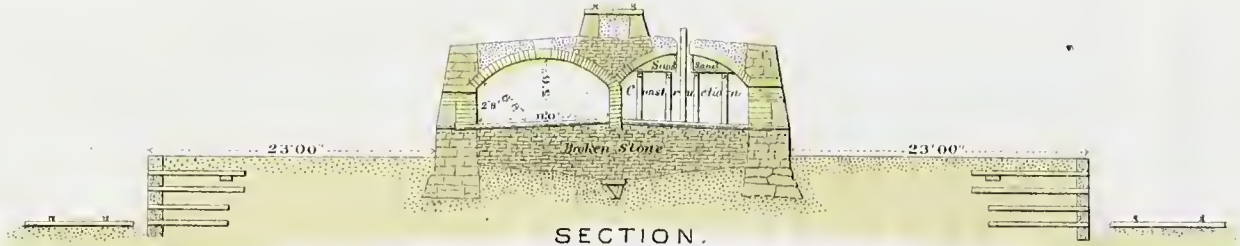
In this report, I have endeavored to present such items as would be of general interest to both operator and miner.

Bituminous coal is now taking a front rank in the smelting and manufacture of iron in its various forms, and is destined to replace the anthracite to a considerable extent, not only in our manufactories, but also for household purposes. I speak of the use of coke, manufactured from bituminous coal. The demand for coke is, at the present writing, so great, that even the most sanguine of our coke producers have been surprised. Coke ovens are going up all over the bituminous coal region, and a fresh impetus is thus given to the mining of that coal. Mines that heretofore found some difficulty in getting a market for their fine coal, now find ready sale for it in the form of coke, and so great is the demand, that some collieries have found it necessary to erect crushers, for the purpose of crushing their coarse coal. It will be seen that a new market is opened for bituminous coal, in the shape of coke. All this calls for an increase of

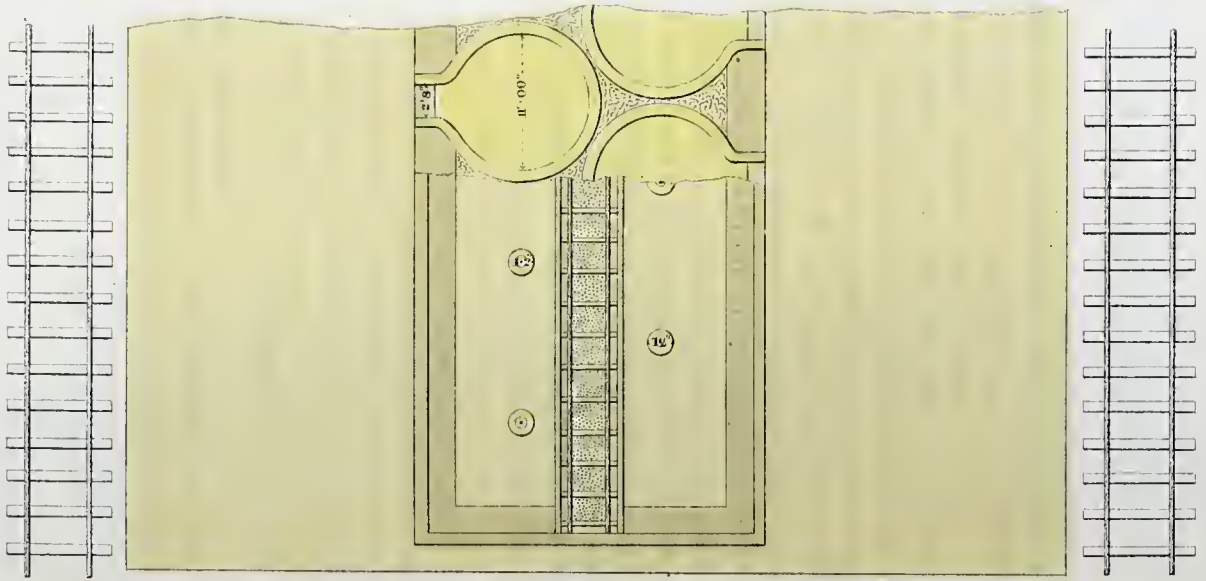
BLOSSBURG COAL COMPANY.

PLAN AND SECTION OF BEEHIVE COKE OVENS.

ARNOT, PA.



SECTION.



Scale-18 Ft to 1 inch.

PLAN.

1879

S. B ELLIOTT, Eng.r

our mining facilities. As the demand for coke increases, we must have more coal, and, as a consequence, our mines will be kept running up to their full capacity.

To show to what extent the manufacture of coke is going on, we find in the Blossburg region coke ovens being built, and sales of coke made, where, until the last two years, not a pound of coke was found in the market. At Arnot, near Blossburg, the Blossburg Coal Company have put up one hundred and fifty-two beehive ovens.

At McIntyre, a few miles from Blossburg, the McIntyre Coal Company are building a few trial ovens, and in the spring of 1880, intend to put up one hundred more, to start with, and build more as their trade increases, and there are other companies in this region that are about to begin the manufacture of coke, so that in a few years, several thousand tons will be turned out annually. I also find on the eastern slope of the Allegheny mountain, new coke ovens are being built. The Glen White Coal Company, near Kittanning Point, Blair county, have fifty ovens in operation, and C. H. Baker, of the same place, has twenty-one ovens turning out coke, and both are still building. Deniston & Porter, near Bennington, on the summit of the Allegheny, are doing a large business in the manufacture of coke in open pits or hearths, and Dysart & Laughlin, a short distance from the summit on the western slope, in Cambria county, who ship east, have seventeen ovens in operation, and intend to put up more, and others are making preparations to begin the manufacture of coke in the near future. Heretofore, the manufacture of coke has been confined principally to the western slope of the Allegheny mountains. Now, the eastern part of the State has entered into competition with the west, and bids fair from present indications to become a formidable rival.

I have briefly mentioned the revival of the manufacture of coke, in order to show its effect on the mining of bituminous coal in this State. Therefore, any investigation or experiments that would lead to improved facilities for the manufacture of a superior quality of coke are very important in their bearing on that industry.

In connection with the above remarks on the revival of the coke trade in the eastern part of the State, I include a drawing of the ovens of the Blossburg Coal Company, at their mines in Arnot, Tioga county, and remarks on the same by S. B. Elliott, general manager for the company at Arnot, thinking they will be of sufficient general interest.

BEEHIVE COKE OVENS.

By S. B. Elliott, General Manager, Blossburg Coal Company.

The Blossburg Coal Company has recently erected one hundred and fifty-two beehive coke ovens, at Arnot, Tioga county, Pennsylvania.

The well-known Blossburg coal is semi-bituminous, with the proper constituent elements to make it unsurpassed for smithing and steam generating purposes, and, although not possessing the same percentage of volatile matter as some other coals in the State, it has shown itself fully equal to any in coking qualities.

It is evident that coal possessing a large amount of volatile matter will ignite sooner and with less heat than dryer coal, (by dryer coal is meant that not rich in volatile matter,) and that an oven so constructed, that it would readily and properly coke rich coal, might be unsuited to one containing only three fourths the volatile matter. By this it must not be inferred that a rich coal is necessarily a superior coking coal. On the other hand, there are coals high in volatile matter that make a poor grade of coke. At the very best, a large amount of heat is wasted in the operation of coking in the beehive oven.

The loss of this heat, in addition to the effect it has upon the character of the coke, represents the loss of so much *time*. The walls and bottoms of ovens must retain enough of the heat given off during the process of coking to heat up and ignite the succeeding charge, and as this comes from the washer thoroughly saturated with water, a considerable amount is required. A heavy drain is also made upon the supply thus stored in the walls and bottoms through the process of watering the coke in the ovens and the length of time elapsing in drawing the charge. This generally consumes about three hours, during which time much heat necessarily escapes. So it becomes a matter of importance to husband all the heat possible, and utilize as far as practicable that developed in coking the former charge. To do this, and thus gain time and consequently increased production and the best results in coking, was an object kept steadily in view while constructing the ovens here illustrated and described. That the effort was entirely successful is a fact too well known to require further remark.

The ovens are placed in a double row, between thick walls of sandstone masonry, and are so arranged as to give the least possible space of filling between the fire-brick walls. This is so that the heat from the burning oven is rapidly communicated to its fellow just charged. Care is, of course, taken that only alternate ovens are drawn at the same time.

The ground between the retaining walls is dug lowest in the center, and a drain constructed as shown.

The space up to nearly level with the bottom of the doors is filled with

broken stone, well rammed. The open character of this filling is deemed highly essential.

Confined air is known to be a poor conductor of heat, and a comparatively small amount of caloric is carried to the ground beneath the broken stone. It is also an absolute security against moisture ascending by capillary attraction which carry off heat.

All coke manufacturers know that the great difficulty with beehive ovens is to properly burn the bottom of the charge without wasting the top by over-burning. A system of flues running under the bottom of every oven, by which the burning gases of ignited charges can be made to do service, is the first thing that suggests itself; but there are difficulties in the way of success lessening the draft, filling up of flues with ashes or unburned substances, leaking of water into flues, and consequent disintegration of mortar, and breaking up of bottoms render the successful adoption of such a system of very great doubt.

Another point gained by filling under bottom of ovens with broken stone is, that the entire fire-brick walls resting on stone do not settle, as they inevitably must, when built directly on earth filling, no matter how well rammed. If the earth dries it must shrink and let the walls settle, which will cause them to crack, as part rest on the retaining walls, and if the earth does not dry them, it will be impossible to heat the bottom of ovens sufficiently to produce good coke. In many places stone filling may cost more than earth, but the additional cost will be small, and will soon be made up by the rapidity of work in ovens, to say nothing of quality of coke, which is certainly better by being well burned at bottom. Any rough stone may be used. The ovens at Arnot were filled underneath with slate and fire-clay from mines.

The spaces between the ovens are built up with rough stone, slate, or fireclay, without mortar, and loose earth or coke ashes freely mixed in but not rammed. As the earth or ashes dry they run down and finally fill about all the interstices. The whole forms a solid yet porous filling, with enough elasticity to allow the fire-brick walls of the ovens to expand and contract by alternate heating and cooling, without damage to themselves or the retaining walls. The stone thus put in prevents settlement of the track on top. On the filling just described, and over all the brick work of ovens, a layer of coke ashes at least a foot in thickness is put, to prevent loss of heat. Thus the bottom filling and also that between ovens, presents a comparatively firm mass, yet so open and porous as to prevent, in a large measure, the escape of heat which would ensue if it lacked this porous character.

The bottom of ovens consist of a course of red brick laid flat in mortar. Upon this a second floor of hard-burned nine-inch firebrick is put, laid on edge and grouted. This forms a durable floor, and one easily repaired, without great cost.

To support track on top. stones from six to eight inches thick are set on edge, as shown in drawings, and filled between with broken stone and earth. Wood-ties, with thirty-five pound rail. are then laid down.

No trouble is experienced from ties burning. The car carrying coal to ovens has an opening on each side. and a spout conducts the coal into the charging hole of ovens.

The drawings show somewhat the method of construction. Sand resting on a floor supported by posts easily removed, is used for a center, instead of wooden forms. This is much cheaper, and answers every purpose. The proper shape is given it by a sweep attached to the center post, erected to aid the workman in forming the oven.

All the coal used in the ovens at Arnot is crushed, and thoroughly washed. Only fine coal, commonly called slack, is used for coking; but this is not deemed fine enough—crushing is essential. A more uniform and firmer structure is obtained from very fine coal than can be produced otherwise. Another point worthy of attention, is to have the coal wet with water before it is put into ovens. Just how this should affect the results of coking is hard to explain, and is not probably fully understood. The blacksmith long ago discovered that it was to his profit to wet his coal when using it, and he did not stop to inquire why. Neither has the coke-maker made the inquiry.

Whether the water in the coal is decomposed, and the hydrogen set free to aid combustion, or whether the conversion of the water into vapor acts mechanically or otherwise, it remains a fact that a better coke can be made from wet coal charged into an oven than if put in dry. When coal for coking is washed, it is always wet enough. The time is rapidly approaching, no doubt, when the consumers of coke will require that it be made of washed coal. When the sulphur in coal (and probably no coal is without more or less) is in the form of pyrites, much of it, together with slate, and other impurities can be removed by washing.

The aim of the iron master is to produce the best quality of iron possible. To this end a pure fuel is necessary, and whoever produces such fuel is sure to be sought and found out.

Probably no coal is mined in the State of Pennsylvania so free from sulphur, and other impurities that it would not pay to wash for coking purposes. This does not argue that all coals if washed will make a good coke. Some are totally unsuited for coking, no matter what process may be adopted. It does remain, however, that all coals would make better coke by being washed.

It is much to be regretted, that thus far no form of oven has been able to successfully compete with the beehive for supremacy as to quality of coke. The loss of carbon is great, and the expense of drawing the coke when made in these ovens, is a material item in the cost of production. They are expensive to build, and difficult to repair. To draw two and one half tons of coke out of an oven eleven feet in diameter, through a door only

thirty inches wide, is no easy task, and consumes much time, and the oven becomes cooled to a serious degree. But for all this, experience proves it the best form thus far devised, and the results must be accepted, because the *quality* of the coke is superior.

CONDITION OF THE MINES IN THE THIRD DISTRICT.

In submitting to you this part of my report, I can present a more hopeful view than I was able to present in my last annual report. Considerable progress has been made, and the mines are in a much better condition than when last reported as to drainage and ventilation, but many improvements remain to be made. I trust now that trade is reviving, many minor details will be attended to in the ventilation and drainage of mines that have been left undone, partly owing to the stagnation of the coal trade, the mines being in operation only part of the time.

With a few exceptions, all the mines in my district now have good ventilating furnaces or fans, so that the superintendent and mining boss have the means at hand to thoroughly ventilate their mine. While I must give credit to the superintendents who, as a class, are anxious to have their mines come fully up to the requirements of the ventilation law, by having good furnaces and fans put up, yet I often find the mine poorly ventilated. Why is this? The cause is found in the neglect of the minor details of ventilation. Brattice and doors are not put up when they should be, air-courses are not driven at proper distances. As a consequence, the air-current is stagnant above a certain point. It is useless to talk of a strong current of air at the inlet and outlet, while at the face of the mine, where the men are at work, no current is found.

The first duty of the inspector, is to see that the proper means to ventilate a mine is at hand, in the shape of fan or furnace. After that is accomplished, then he must depend largely on the inside boss. With him the inspector must continually wage war, in order to have the mine properly ventilated. As a general rule, after the superintendent has seen that the means are provided for ventilating the mine, he leaves the rest to the inside boss, and it is just here the inspector's trouble begins. In my previous report, I urged the superintendents of mines to give the minor details of ventilation more of their supervision. The superintendent should see to it that he has a competent inside boss, one that fully understands his business, and conscientiously performs it.

In visiting a mine in charge of such an inside boss, the inspector finds proper air-courses driven at regular distances, (not too far,) doors and brattice promptly put up when needed. The mine is kept well drained, and roads in good order. A hundred and one reasons are not given why such and such a section is not properly ventilated. He knows there is a law requiring the mine to be properly ventilated and drained, and endeavors, as far as practicable, to carry out the provisions of that law.

The duties of the mine inspector are arduous, owing to the many different systems under which the mines are conducted in this State. In Great

Britian and Europe a more uniform system prevails, under competent min ing engineers; while with us, with few exceptions, the companies only em ploy one once a year, to take a map of their mines and locate their boundar lines. Here generally ends his connection with the mine. He has nothin to do with the working or giving instructions as to the proper mode o ventilation.

If this system of conducting our bituminous mines is adhered to, it i imperative to all parties concerned that the inside bosses, as a class, sha be men of intelligence, well versed in the theoretical as well as the practica part of mining. It is useless to say, because he has worked twenty year or more that he understands all about mining. As well may we say, tha a man who has had no other education than following the plow understand the science of farming. It is essential that he keeps booked up in all tha pertains to his business, and that he make the study of mining a speciality

With this class of men in charge of our mines, operator and miner wi be mutually benefited; the operator by having his work done with mor economy; the miner, by increased facilities for performing his labor. I my district credit is due to a number of inside bosses, who are endeavorin to perform their duties faithfully and seeking to acquire all the informatio possible in relation to their business, and every facility should be afforde them for gaining the desired knowledge.

Thinking the following article, copied by the *Coal Trade Journal* fro the *London Mining Journal*, would be of some interest, I have embodie it in this report:

"In the carrying out of mining operation scarcely anything is of greate importance than an accurate knowledge, on the part of managers, of th nature of gases, the physical laws which regulate their movement, and th means by which their destructive properties can be neutralized and ren dered harmless.

But such knowledge is anything but general amongst the class to whic it would be of the greatest benefit, and cannot fail to interest a large pro portion of our mine managers in all parts of the country, and who may b induced to make further investigation, which will repay them well. In al mines, we may say, gases are met with, for if there were no other cause there would be the combustion of light and the respiration of men and ani mals, which lead to the formation of steam and highly deleterious gases but in many places such are found in connection with the mineral being worked, so that when the latter has been removed from where it *has bee pent up for long ages* they are at once released, in many instances spread ing over a large area, requiring immediate dilution with fresh air to rende them harmless.

But many of the gases met with in mines have helped to form the min eral in which they are found, and so return to us in something like thei original state on being liberated from their long confinement, by the break ing down of the strata which inclose them. Amongst the most importan

as well as interesting of these is the *carbonic acid gas which is found in all our mines* in quantities more or less. In mines in which coal is raised it is found in considerable volumes, *and it is considered to be far more injurious to the health of the workmen than the inflammable gases.* Owing to its specific gravity, which is 1.924, it is found in the lower part of mines, and after an explosion many men that escaped the firery gas have been killed by the choke-damp, of which a large proportion is carbonic acid. Lights are extinguished in air mixed with one tenth of carbonic acid, which acted on men in the same way as poison, and as soon as it amalgamated with the air by more than eight per cent. there was danger of suffocation.

Dr. A. Smith, in alluding to it, says: Where there were two to two and a half per cent. of it present, the proportion depending somewhat upon the temperature, &c., candles were extinguished, and that so small a portion as one tenth per cent. was sufficient to cause a workshop to be considered close.

The smallest quantity that would suffocate a man was not exactly known, but where there was sufficient to put out a candle, it was evident that a person would not long survive in it. *In excavations where the air is constantly renewed carbonic acid is continually formed*, so that there should always be sufficient ventilation to draw it away, and to keep the quantity which is mixed with the air below what would render it injurious to the workmen. Carbonic acid, it should be stated, is necessary to animal life, for a man in twenty-four hours converts as much as seven ounces of carbon into carbonic acid, and a horse seventy-nine ounces, solely by the act of respiration, and all of which ascends into the air, being evolved by the heat of the body. But when it is converted into gas it is very different. It then takes an important part in the formation of coal, for the trees and plants that grew in the forests and swamps drew their carbonaceous properties from it, the gas and water existing in the soil and floating in the air, being aided by the light and sunshine, for decomposition ceased in the dark. There is another property peculiar to carbonic acid. If a small quantity is added to an explosive mixture of air and fire-damp, it will weaken, and in some instances prevent an explosion. One seventh added to a mixture, the most explosive, being sufficient to destroy the explosive property. Carbonic acid gas, too, is dissolved by water in a volume nearly equal to its own by atmospheric pressure, and under a higher pressure the water absorbs a large quantity, which ceases when the extra pressure is removed.

All gases are said to have the property of diffusion, or of mixing with each other, *but carbonic acid is found in the lower part of all excavations*, owing to its greater specific gravity, consequently in entering old or abandoned working places in mines, they should not be entered under any circumstances until it was seen that they would allow of the combustion of lamps.

As carbonic acid is the most deadly of our gases, *managers of mines should be thoroughly acquainted with it and the places where it is to be*

found; and, as we have before stated, it is to be found where numbers of men and animals are to be met *with more or less in all mines*, and owing to the effect of even a small quantity on the health of workmen, it should be swept away by copious and constant supplies of fresh air, for the working places in mines can be made as healthy as those on the surface. It will be seen by the above, the necessity of having a good current of air, to sweep out the deleterious gases, by having other than natural ventilation.

A good fan or furnace is a necessity; a fan is preferable, on account of the steady current of air that it gives. While a furnace is a good artificial means of ventilating a mine, and is largely adopted, it requires constant attention, but is too often neglected; the fire is allowed to go down, and the fireman, to save labor, frequently heaps coal on until it is a black mass. It is then left until it burns up. During that time the current is slackened and the air becomes stagnant at the face of the work.

All this can be avoided, and I would urge the superintendent and inside boss to see that they have a man at the furnace who will faithfully discharge his duty, for there is no more responsible position in connection with the ventilation of a mine than that of fireman at the ventilating furnace; for the ventilation of the mine depends on a good fire being constantly kept up. With the means to ventilate, it is also necessary that good air courses be kept open. Of what use would be a furnace or fan if the road the air has to travel is narrow and contracted, and, as I have seen in many instances, almost filled up with rubbish, such as bone-coal, slate, and old timber. They are not only choked with the refuse of the mine; the excretion of the bowels are found, from which noxious gases are given off, such as sulphureted hydrogen—it is a gas that is very injurious in its effects on the health of the miner. Every precaution should be used by the superintendent and inside boss to see that all rubbish is cleared out, and no foul matter allowed to accumulate.

The air-course of a mine should be large, and sharp angles avoided as much as possible. Every superintendent, and inside boss knows, or should know the law that governs air in motion, and the effect that friction has on the velocity of air; also, the increased pressure that is required where there is a great deal of friction. The pressure required to overcome the friction in the same air-way, varies in the same proportion that the square of the velocity of the air varies, increasing or decreasing accordingly. Under that rule, it will be seen that all air-courses should be driven with a view to have as little friction as possible.

I do not intend to give in this report, a statement of the laws which govern the ventilation of mines. Those having mines under their charge, can easily avail themselves of the many exhaustive works by the best authorities on that subject in this country, Great Britain, and Europe.

I wish chiefly to give a description of the mines with their condition, and endeavor to point out existing evils, and their remedy; also, to note any improvements in connection with mining.

As considerable progress has been made within the last few years, and the bituminous mines of this State, are now in a condition that demands a more scientific method of mining, it is essential that they be brought up to some scientific standard, which would secure more uniformity in the method of planning and working.

Most of our small mines, the area of which is not large enough to warrant any permanent improvement, either in the mine or out, are in most cases nearly finished.

But in the management of our larger mines, the output of which will last for many years to come, the planning and conducting should be done with a view to more permanent results for the future. The best means of ventilating; how best to drain; the most economical mode of haulage, and the best and improved methods of planning and working. All this is now commanding the attention of those engaged in mining. The day has passed in Pennsylvania, when mining was carried on without regard to the life or health of the miner.

So long as men to earn a livelihood must mine coal in the bowels of the earth, justice demands that while performing their labor, all the necessary safe-guards should be thrown around them for the protection of their health and life. If our industries must be protected, so must those engaged in them. Let it not be said, we sell coal at the sacrifice of human life and health.

The coal trade should be protected in such a manner that the product of the mine can go into the market and command remunerative prices, so that employer and employed can each reap their proper reward.

That our mining interest needs looking after is self-evident to any one looking over the coal fields of this State. Shore mining is being brought to a close, and we are now compelled to extend our works long distances underground, and every extension requires an additional outlay, which adds to the cost of production. Under these circumstances underground haulage becomes an important factor.

In my last annual report I briefly reviewed the different methods of underground haulage in this country and Great Britain. In the latter country the tail and endless wire rope are used to advantage, and a compressed air locomotive has been put on trial. In pits the tail or endless wire rope is preferable, while in veins of coal, the outlet of which is on a level with the vein, it at once becomes apparent that the motive power to be used can move along the track. Locomotives of two kinds are used for that purpose, one driven by steam, the other by compressed air.

Owing to the expense entailed in the use of compressed air as a power, it will, perhaps, not be used to any great extent. In that case we must fall back on the locomotive driven by steam. Here we are met with an objection to overcome which is the great desideratum. I allude to the gases given off by the combustion of coal for the purpose of generating steam. Several of our coal operators tried the mine locomotive, but owing to the

difficulty of getting rid of the smoke they gave it up. Coke was used, next charcoal tried, but no fuel was found that did not give off fumes which would endanger human life when inhaled.

All this could be obviated, but would entail considerable expense, while experience proves that in the test of the locomotive *versus* mule or horse power for underground haulage, the end justifies the means.

Let us look at some of the means necessary to accomplish that end. The first requisite is plenty of fresh air, with a current on the gangway or tunnel, running at a speed of not less than four miles an hour. This current must be steady, and for that purpose the fan will be found the best, as a steady and uniform current can be kept up all the time. Next is have the gangway or tunnel sufficiently large, and any attempt to use a mine locomotive without sufficient air, and in a narrow and contracted gangway, must prove a failure. The writer has visited mines where an attempt was made to use a mine locomotive, where the two essentials, air and room, were wanting. The roof was within a few inches of the engine cover, and just room enough between the sides of the tunnel or gangway and the locomotive for a man to pass, with scarcely any perceptible current of air. Under such conditions it was expected to work a mine locomotive successfully.

The tunnel or gangway must be made large enough to allow a large volume of air to pass around the locomotive. The gases and smoke from the engine must have room to expand, and mixing with the air become so diluted, that if inhaled, no dangerous consequences would ensue. With a good current of air sweeping through a tunnel or gangway of sufficient size, the mine locomotive can be made a success.

As to the endless wire rope which has been introduced into several mines of this State, it will be understood, requires no larger sized tunnel or gangway than that used for mules or horses. The ventilation in the tunnel, when the wire rope is used, will not be taken into the calculation, as the ventilation is essential to the mine as a whole.

The following estimated cost of hauling coal under ground by an endless wire rope was taken from the books of the Morris Run Coal Mining Company, by permission of W. S. Nearing, superintendent and mining engineer for the company. This company have a steel wire rope three fourths inch diameter, which has been running four years. Length of rope, 4,580 feet; average grade of road up which the coal is hauled, $= 2\frac{1}{2}$ feet in 100 feet; the heaviest grade, $= 4\frac{1}{2}$ feet in 100 feet; cost per ton for rope, $= \frac{4}{10}$ of one cent; cost for labor, $= 2\frac{32}{100}$ cents; cost for machinery and plant, $=$ 1 cent; total cost, $= 3\frac{72}{100}$ cents per ton.

The cost of hauling coal by mule power varies according to the distance. This company has several drifts in operation, the average cost as taken from the several drifts would be $8\frac{1}{2}$ cents per ton. Thus showing a saving by use of wire rope of $4\frac{78}{100}$ cents per ton.

In connection with the subject of underground haulage, John Fulton, general mining engineer for the Cambria Iron Company, has kindly fur-

ROLLING MILL MINE,

Showing the LOCOMOTIVE Tunnel.

CAMBRIA IRON COMPANY.

JOHNSTOWN, PA.

1879

Jno Fulton

Gen'l Manager

OUTPUT OF THE MINE

STONY CREEK

Old Furnace

Central Depot

MEDOMEY

TOOLE

Johnstown Iron Ore

LEMON Seam

Limestone Seam

Cement Seam

Coal

nished the following article by request of the writer. The article speaks for itself, as showing how a tunnel or gangway should be driven for the use of a mine locomotive, also the ventilation of the same, with the difference of cost in coal hauling between the locomotive and mule power.

There can be no reasonable doubt that coal mining, as a whole, has received considerable impetus in the past decade.

This progress has been quite marked in improved methods of mine planning and working, with corresponding advance in the ventilating and sanitary condition of the mines.

All these improvements have contributed to the economy of the production of coal, for economy and science are corelated. Perhaps the factor of "haulage" has made the least progress; certainly, at least, in the bituminous mines of the Commonwealth of Pennsylvania. This is owing, in some degree, to the thin coal beds leaving rather low gangways in which it has been found difficult, and in some cases impracticable to introduce the improved motor—the mine locomotive.

It is true that other methods of haulage could have been applied to advantage in the bituminous coal mines, the "tail-rope" system, with its single track, or the "endless" chain or rope, with its ample double track, the power in both cases being applied from a stationary engine near the entrance of the mine. In point of economy, both these systems give satisfactory results, the latter system inheriting much the larger capacity for delivering coal. Both systems are somewhat complicated, or rather not yet well understood, hence the tardiness of their application. In most of the bituminous mines of the State but a single step has been made in the "haulage" by the use of horse or mule power in the place of the rude primitive method of man or boy power.

With a few exceptions, the more advanced methods of endless chains or ropes, with stationary engines and mine locomotives, have not yet been adopted. The applications of these improved methods will depend upon their usefulness in special cases, each case being determined on local peculiarities and requirements.

THE ROLLING MILL MINE

Of the Cambria Iron Company, at Johnstown, Pa., was opened originally to supply the iron works with a heating and steam making fuel.

It is situated one half mile south-east from the iron and steel works, in a hill four hundred feet high; the level of the mine being seventy feet above the water level of the Conemaugh river. For some years after the opening of this mine, mules and horses were employed in the underground haulage, and also in delivering to the several localities where the coal is used at the works.

Subsequently small locomotives superseded the horse and mule power between the entrance of the mine and the works, leaving the latter power in the mines, and the locomotives outside. This arrangement was continued until the increasing length of haul and the corresponding decrease in

mule work indicated the arrival of a time when the demands of the works would require improved transportation facilities under ground. The underground haulage by mule power was made more expensive and more dangerous by narrow and low gangways, with undulating gradients. The dryness of this mine, from its elevated position above the river, made it possible to drive gangways irregularly above and below their "line of strike." These undulating mainways of the mine have been a source of much expense, and were the fruitful source of accidents to drivers and to mules, inducing frequent delays and interruptions in this department of the work.

In 1878, the out-put of the mine had increased to five hundred tons per day, with evidences of much larger demands upon its capacity; thus requiring that a determination of the future method of the under-ground haulage should be decided upon.

Three systems were suggested for consideration: First. By mule power on an improved double-track gangway. Second. Endless rope or chain with stationary steam power. Third. Locomotive power on a single track and an enlarged mainway. If the two original parallel mainways of this mine had been placed side by side, in place of one thousand feet apart they would, consolidated, have made a double track mule-way, which is considered the most effective and economical method of applying this kind of motive power.

Assuming, therefore, that a double track mule road would cost no more than a single track locomotive road, the comparative merits of the two motive powers would indicate the one to be adopted.

The length of the haul, from the point in the mine where the trains of coal cars are made up to the mouth of the mine, is one and one quarter mile.

ESTIMATE OF MULE POWER HAULAGE.

Twenty-five mules to haul 700 tons per day, @ $1 00=$25 00.	
Interest, 10 per cent. on $25 00=$\frac{\$25\ 00}{365}$=, per day, ...	80
Twenty-five mules—feed, driving, superintendence, &c., $1 30, . .	32 50
Total per day, ...	$33 30

Then $\frac{\$33\ 30\frac{1}{2}}{700\ \text{tons}}=4\frac{3}{4}$ cents per ton for the $1\frac{1}{4}$ mile haul, or $3\frac{8}{10}$ cents per ton per mile.

ESTIMATE OF LOCOMOTIVE HAULAGE.

One mine locomotive to haul 700 tons per day in gangway, $6,000 00.	
Ten per cent. interest on $6,000=$\frac{\$6000}{365}$=, per day, ...	1 9
Engineer, fireman, and brakeman, ...	4 1
Oil, tallow, waste, and coal, ...	1 0
Total cost per day, ...	$7 0

Then $\frac{\$7\ 04}{700\ \text{tons}} = \frac{1007}{1000}$ cents per ton, say one cent per ton, or $\frac{8}{10}$ cent per ton per mile.

These represent the actual cost of under ground haulage by the two methods compared—mules and locomotive. No allowance has been made for repairs of locomotive on one side, or the renewals of mules on the other. Nor has any additional charge been made for the improved apparatus for ventilation induced by the use of the locomotive, for it has been found that an increased volume of air will be required to meet the expanding proportion of the mine, and that it can be supplied by the Murphy fan more economically than by any other method.

The cost by each method, therefore, represents rigidly the cost of *motive power only in hauling coal under ground* $1\frac{1}{4}$ *mile.* The cost of maintenance of way, and the work of collecting the coal cars to "Central Depot," from the miners' rooms, are not embraced in these calculations.

In view of the location of this mine, on the flank of a steep hill, and the special character of the service to be accomplished by it, *the delivery of coal in mine cars to the works*, it was deemed best to adopt the use of the mine locomotive in the underground haulage from central depot to the entrance of the mine or to the works.

This would be simply extending the run of the locomotive one and one fourth miles under ground. It is to be further noticed, that the estimated economy of the mine locomotive over mule power in underground haulage, is only a portion of its real advantages; it possesses the further desirable qualities of regularity in doing the work, promptness and dispatch in supplying the mines with empty cars, and its ability by increased and tireless speed to compensate for lost time from any of the causes incident to mining operation, besides the regular supply of fuel to large works—all these add to its aggregate ultimate real economy. On the selection of the mine locomotive for the underground haulage, it became necessary to open an enlarged tunnel, with uniform gradients descending with the tonnage, and to make the alignment so that the track would safely sustain a rapid and heavy tonnage over it.

The minimum size of the locomotive tunnel is eight by nine feet. In many portions it is from ten to fifteen, and twenty feet high, owing to the irregularity in the grades of the old gangway, the line of which it mainly follows. It required a year to complete the tunnel of nearly one and one half miles long. It was executed under the efficient superintendence of Mr. John Cameron, without interrupting the increasing daily supply of coal required from the mine.

The general character of its line and grades will be seen on the mine plan accompanying this paper, together with the alignment and gradients of the old mule tunnel previously in use. The track is laid with forty-seven pound rails, with splice-bars on large white oak cross-ties, and the whole ballasted and surfaced with great accuracy and care.

One and one fourth miles from the entrance of the tunnel at central depot, ample sidings have been laid for receiving the empty cars coming into mine, and making up trains of loaded cars for going out. From the entrance of the mine to central depot, the tunnel constitutes the trunk line and the branches from the latter point, extending through the working sections of the mine, are operated by mules for the distribution of empty cars, and the collecting of loaded ones. It will thus be seen that the terminus of the locomotive road at central depot, is in the northeastern section of the mine workings. The design is to extend this central depot, as the advance of the mine workings requires it.

The ventilation also requires to be largely increased. The languid and slow work of the old ventilating furnaces, could not be depended on to clear out the smoke and steam of the locomotive swiftly, and keep the atmosphere of the mine pure and healthful. To insure this, beyond any peradventure, the main air-ways of the mine were enlarged, and a Murphy fan erected on the eastern flank of mine. This fan is double, with a diameter of eight feet, arranged in a moderately large boxed frame, seventeen by eleven by fourteen feet, with three compartments.

It can be used either for *forcing* air into the mine or *drawing* it out by a simple change of the compartment doors without changing the movement of engine or fan. The fan is driven by a stationary engine of twenty-horse power. It is designed for a maximum speed of three hundred and five revolutions, giving one hundred and seventy-five thousand four hundred and thirty-five cubic feet of air per minute. This would be reduced by the friction of shaft and air-ways.

At present the fan is running at two hundred revolutions per minute, producing forty-eight thousand cubic feet of available air, as measured by actual distribution in the mine. This can be readily increased when desired to at least double volume. The cost of fan and engine, with stone house and other appliances, was about two thousand dollars, which is a litte over the cost of the old ventilating furnace, with its grate surface of nine by seven feet, and its stack of ninety feet high, having an ultimate capacity of two thousand cubic feet of air per minute.

The relative cost of ventilating by the two systems, as determined at this mine, is as follows:

VENTILATING BY MURPHY FAN.

One engineer, at $1 35 per day,	$1 35
One attendant digging coal, at $1 20,	1 20
Oil waste and repairs of machinery,	40
Total per day,	$2 95

VENTILATING BY FURNACE.

Two men attending firing and digging coal,	$2 00
One mule hauling coal occasionally,	20
Light by lamps, and powder for blasting coal,	15
Total per day,	$2 35

It will thus be seen that the Murphy fan is very superior to the furnace, giving, at a low speed, four-fold the volume of air of the latter at nearly the same daily cost.

The method of ventilating this mine is made clear by the arrows on the mine plan, indicating the courses of the air currents in the intake and discharge drifts. The pure air is forced into the mine and *circulated over the miners in the several working sections of the mine, and discharged out through the locomotive-way.*

The smoke and steam of the locomotive is blown out of mine by the concentrated streams of air, after having passed over the workmen.

There are at present two hundred and sixty-five men and boys in mine, and twenty-nine mules. These would require, under the "ventilating act," one hundred cubic feet of air per man per minute, or thirty thousand cubic feet of air per minute for all. As forty-eight thousand cubic feet of air per minute is now distributed in the mine, it is evident that more than an ample provision for all the men, mules, and locomotive has been secured.

A careful estimate of the economy of haulage by the mine locomotive system over the previous mule system, indicates a saving of at least five cents per ton. This on seven hundred tons per day, which is the present out-put of the mine, would give a saving of $35 per day, or $10,850 per year. In other words, the economy of this improved system of haulage will cover all the expenses of its introduction in a little over a year. The past experience of the introduction of mine locomotives to do the work of the mine haulage has been somewhat contradictory. In some cases it has been successful, and has been continued with comfort and profit. In others it has been abandoned, after a time, chiefly on account of the difficulty of disposing of the products of combustion from the locomotive, and its consequent ill effects on the men engaged on or about it. The want of success in some cases would appear to arise from two causes—the too limited size of locomotive tunnel and the use of inefficient means of ventilation. The experience here is, that the tunnel, eight feet high and nine feet wide, is about the right size for preserving the health of the men engaged on engine. It is possible that they could live in a more limited gangway, but the experiment would be somewhat doubtful. Even in this rather liberal size of tunnel a good many whiffs of smoke and steam are breathed, whilst in the portions of the tunnel fifteen to twenty feet high a person feels just as comfortable as if riding outside.

The sanitary success of this tunnel is attributed in a great measure to the high sections in it. The only smoke felt is in the trip into the mine

with the smoke stack foremost, coming out with loaded train with tank foremost, and keeping at a speed somwhat faster than the ventilating current, no smoke is breathed.

The ventilation must be energetic and reliable in all weathers to insure success. The ventilating current should be driven at three to four miles an hour in gangway, so as to clear away smoke promptly, and yet not require the engineer in running out of mine to move to fast for the safety of his train.

It is assumed *that all main avenues of a mine over which much tonnage is to be hauled will be made with uniform gradients descending with tonnage.*

With these conditions, satisfied with ample tunnel and vigorous ventilation, it is difficult to imagine how there can be a want of success in using a locomotive in the mainways of the bituminous mines.

The increased current of air demanded by the locomotive, is an element of health to the miners, and costs but little more than for the ordinary inadequate supply. The rapid decrease in the efficiency of mules under lengthy underground haulage, must induce the introduction of less expensive motors in this work. It has hitherto been much neglected in the shore mining of the bituminous fields, but as greater depth is attained the haulage factor will tell in the cost of mining coal.

A smokeless motor for this service would be desirable, if not accompanied by expensive appliances, for it could be used in very small tunnels, and thus reduce the cost of this description of mining work; but the expenses attending the enlarging of a tunnel in moderately thin seams of coal for locomotive use, are very small, compared with the decided advantages gained by its use. The whole study of this matter is worthy the attention of mining engineers and superintendents. Its long neglect will force it more prominently into notice, until it shall have received the attention its importance demands.

In closing this part of my report, it is with the hope that the bituminous mines of Pennsylvania will be worked under a more uniform system, and under competent management will be raised to a higher standard.

Very respectfully yours,

WILLIAM L. RICHARDS,

Mine Inspector, Third Bituminous District, Pennsylvania.

BLOSSBURG, *Tioga county.*

EXAMINATION OF MINES.

ARNOT MINES.

Located at Arnot, Tioga county, about four miles from Blossburg. Operated by the Blossburg Coal Company, S. B. Elliott, general manager at

Arnot, and mining engineer; J. J. Davis, mining superintendent. This is among the largest bituminous mines of this State. At present writing, three drifts are in operation, and arrangements are being made for opening a fourth.

Ventilated by furnace, and worked on the double-heading plan, with the over-cast system of ventilation.

An examination of this mine showed a good current of air, but, as stated in this report, the minor details will have to be strictly attended to in order to keep the current of air up to the face of the work.

Messrs. Elliott and Davis are both anxious to have the mine thoroughly ventilated and drained. While the means for thoroughly ventilating the mine have been provided, much depends on the inside bosses of the work. The mine as a whole is well drained, and by proper attention to doors and brattice a good current of air can be circulated through the work.

A new air shaft has lately been put down, and the plan on which the work is conducted is good, well arranged for the proper distribution of the air. As all large works are drawing back pillars, special attention must be paid to that department of the work. By keeping the air-ways in proper order, so that no air shall be lost before it reaches the face of the work, Arnot will be found among our well ventilated mines.

ANTRIM MINES.

This mine is operated by the Fall Brook Coal Company, located at Antrim, Tioga county; Thomas Farrer, manager; Thomas Gaffeny, mine superintendent; worked on the double-heading system; ventilated by furnace. Since my last report, good progress has been made. Messrs. Farrer and Gaffeny have been doing all they can to improve the ventilation and drainage of the mine.

The mine is a difficult one to ventilate and drain, owing to the unevenness of the strata, which requires many changes to be made in the currents of air, so that the air can be kept up to the face of the work. I notice the minor details are better attended than heretofore, for of what use is a strong current of air on the gangways if it is allowed to escape before reaching the rooms or breasts where the men are at work. If the doors and brattice are properly attended to, and a good fire kept up in the furnace constantly while the men are at work, (a very important matter in the ventilation of a mine by furnace,) the mine can be thoroughly ventilated. The plan of the mine is very good, the proper air-courses are driven, and all the rooms or breasts properly connected with the main air-ways, and if the details mentioned above are carried out there will be no trouble about ventilating the mine.

FALL BROOK MINES.

Located at Fall Brook, Tioga county. Operated by the Fall Brook Coal Company. A. Hardt, general manager and mining engineer for the company; A. J. Owens, manager; James Pollock, mine superintendent; worked on the double-heading system; ventilated by furnace. This work, for some

years, has been running very unsteady—at one time having from one to two hundred miners employed, at other times from fifteen to twenty. At present writing one hundred and seventy-five men and boys are employed, running full time.

On the whole, this mine has been very well ventilated and drained, but a great many difficulties have to be overcome. A large amount of the mining done is the drawing back of pillars, and as every person connected with mining knows, is the most difficult to ventilate. Add to this the falling of the top to the surface, causing considerable trouble in regulating the air currents.

Mr. Pollock, mine superintendent, is ever on the alert, and keeps a watch over all the work, and is doing very well, when the difficulties he has to contend with are taken into consideration. The company are at present operating two drifts, and since my last report more men have been employed, requiring increased carefulness. Air-ways have been overhauled, doors and brattice have been promptly attended to, and all the necessary repairs made to insure the proper ventilation of the mine.

MORRIS RUN MINES.

Located at Morris run, Tioga county. Operated by the Morris Run Coal Mining Company. W. S. Nearing, manager and mining engineer; William R. Gilmour, mining superintendent; worked on the double-heading system; ventilated by furnace, with over-east. Four drifts are in operation, two of them are being worked out, most of the work in them being confined to the drawing back of pillars; the other two have just opened up into an extensive field of coal. In one of the latter the coal is hauled out by an endless wire rope, mention of which is made in the former part of this report.

This work has been in operation about thirty years, and is very extensive. A large number of gangways are in operation, and with the numerous cross-headings and the rooms or breasts turned off them, make very extensive underground workings. The means to ventilate this work are ample. Each drift has a good furnace, but in so extensive a work too much care and attention cannot be given to the various means whereby the air is taken from the main current and sent to the face of the work, and will require constant watchfulness on the part of the inside bosses to see that no air is allowed to escape.

Care should be taken that all ventilating doors in the mine be kept closed, except at the time when loaded and empty cars are going in and out; this is essential in all large works where many doors are used. This work is well laid out; the plan of the mine is peculiarly adapted to a thorough ventilation of the entire work, and if the proper care and attention is bestowed on the details as mentioned above, the drifts can be thoroughly ventilated.

McINTYRE MINES.

Operated by the McIntyre Coal Company. Located at McIntyre, Lycoming county. G. H. Platt, general manager and mining engineer; worked partially on the double-heading system; ventilated by furnace. Since my last report, this mine has been idle several months, owing to a local difficulty. It can be classed among the large bituminous mines of the State. Considerable progress has been made in the ventilation and drainage of the mine. Mr. Platt and his assistants have been working industriously to improve the ventilation, and have made many improvements since my first visit.

The company have three drifts in operation, but as stated in my previous report, are difficult to ventilate, owing to the many breaks in the top, reaching to the surface, materially affecting the circulation of the air around the face of the work. Considerable care has been taken to have doors and brattice put up when required, but to insure success, will require constant watchfulness. Brattice-boards will become loose, and often fall down, thus breaking the current. Doors will be neglected and left open, air-ways will sometimes be partially filled up. Any one of the above will form a break in the current, and the result will be a general stagnation of the air in and around the face of the work. All these things require watchfulness on the part of the inside boss. Let those having charge of the inside work be ever on the alert, to see that no air escapes from the main current until it reaches its proper destination.

BARCLAY MINES.

Operated by the Towanda Coal Company. Located at Barclay, Bradford county, under the management of F. F. Lyons, mining engineer; worked on the single and double-heading system; ventilated by furnace.

The company are at present operating four drifts, two of them are new, mention of which was made in my last report. Good ventilating furnaces have been put in, and the plan of both drifts for thorough ventilation and drainage is very good. Messrs. Carroll and Ditchburn had made up their minds if there were any defects in the old drifts, there should be none in the new, and have made all the necessary improvements to make them a success. In the old drifts, on my first visit, I found the furnaces too small. I at once notified Mr. Lyons, the manager, who, without delay, made the necessary alteration. While they cannot be brought up to the standard of the new ones, on account of the long distance the air has to travel, and the many headings and cross-headings in connection with the old abandoned work, they can be properly ventilated by proper attention to the doors and brattice. These must be kept in good order, so that the air-current will be confined to its proper channel, and not be allowed to scatter over the old workings. The new drifts have made a good start, and every arrangement is made to have them come fully up to the standard.

SCHRAEDER MINES.

Located at Carbon Run, Bradford county. Operated by the Schraeder Coal Company. R. A. Abbott, general manager.

Ventilated by furnace, worked on the double and single-heading system. At present three drifts are in operation, two of them are new. The old drift has a small furnace, too small in fact, but, to compensate for its smallness, the air comes in at the back of the work, a heading having been driven through the mountain for that purpose, the drift has the advantage of being ventilated almost direct from the outside. Messrs. Williams and Jones, the inside bosses, have it in their power at all times, in this drift, to give their men fresh air. On the whole, the drift is very well ventilated, but the top in the back part of the work is very weak. I examined one part of the work during my last visit, in which but very little air was found, owing to an air-way that had fallen in. Steps were at once taken to drive a heading to connect with an open air-course. In all such cases great care should be taken, before starting a range of rooms or breasts, to see that the air-ways are all in good order.

Williams and Jones are good inside bosses, and seem to understand their business, and, I have no doubt, in the future will be able to keep their air-ways open and in good order. In the other drifts the air enters at the mouth, passing around the face of the work to the furnace. In one of the drifts, very little coal is mined, the territory being limited; the other is worked very extensively. The plan on which these drifts are worked is very good, ample means being provided for thorough ventilation. All that is essential, is to see that the air current is not allowed to escape before it reaches its proper destination, this can only be done by brattice and doors in their proper places, and keeping them in repair.

ST. MARY'S MINES.

Located near St. Mary's, Elk County. Operated by the St. Mary's Coal Company. J. B. Coryell, general manager at the mines; Joseph Patton, superintendent. The company have at present in operation three drifts, and doing a fair business. The coal territory in this part of Elk county is not large. Two of the drifts are nearly worked out. The other has been driven through a small hill, and entered another, from which most of their coal is taken out.

Several improvements have been made, but much yet remains to be done. The present inside boss is taking quite an interest in his work, and shows a disposition to get the mine in good order.

This mine is ventilated by natural ventilation, which is entirely inadequate. Had a talk with the general manager, and told him I should expect to have a ventilating furnace put in the mine as soon as possible.

Natural ventilation is good at some seasons of the year, but it is useless to talk of thoroughly ventilating a mine by such means.

The mode of working this mine is a mixture of several plans, and is well

arranged for ventilation, with only one draw-back, viz: The headings are too small, as most of the coal is taken out by hand. The headings have never been enlarged. With a reasonable sized furnace, and proper doors and brattice, the mine can be properly ventilated. The drainage is very good, and ventilation not bad, but will require the above mentioned improvements to make it complete.

CASCADE MINES.

Operated by Haul & Kaul. Located one mile from St. Mary's. Two drifts are in operation, worked on the double-heading system. The mine is a new one, but air-shafts have been put down, and arrangements will be made to have a furnace put in, as the two drifts can be ventilated from one furnace. Very little has been done during the past year, but as business is reviving, and this, like other mines that have not been doing much, will soon be in full operation again, when arrangements will be made to have the mine put in order for ventilation and drainage. The mine has good air-courses, and can be put in good shape with very little trouble.

DAGUSCAHONDA MINES.

Operated by the North-Western Mining and Exchange Company. Located at Dagnscahonda, near Centreville, Elk county. Mr. David Robinson, general superintendent. Ventilated by furnace, and worked partially on the single and double-heading system.

The company are at present operating two drifts, which I found, on an examination, in very good order, very well drained, and the ventilation fair, the principal drawback being too small a furnace. To remedy that defect, the company are erecting a large ventilating fan, which will thoroughly ventilate the entire mine.

The mine is well laid out, and the arrangements for ventilation are very good. I found the brattice and doors, upon the whole, in very good order. A very fair current of air was found at the face of the work. With the large fan that is being erected and the good arrangements that are made in the mine there can be but very little trouble at Dagnscahonda. Mr. May, the company's mining engineer, has laid the work out well, and is keeping a watchful eye over the work as it progresses, of which he has kindly sent me tracings from time to time.

Mr. Robinson and Mr. John Dowie, the inside boss, have taken a special interest in having the mine come fully up to the standard.

GLEN MAYO MINES.

Located near Wilmarth, Elk county, one and one half miles from Philadelphia and Erie railroad. Operated by J. H. Mayo & Co. J. H. Mayo, general manager.

This is a new mine, or rather an old one re-opened. The old work had nearly all fell in, the top being very bad; headings and rooms alike having fallen in. When I visited this mine they were busy opening up the rooms

and headings, and had commenced to drive one or two places in the solid. I made arrangements to have a good air shaft put down, with a proper stack on it, and if the work continues, will have a furnace put in and other arrangements made for the proper ventilation and drainage of the mine.

BUTT'S MINES.

Located at Buttsville, near Alton, McKean county. Operated by J. E. Butts, junior. J. E. Butts, superintendent.

This mine is worked on the single-heading system, but during the last year it has been worked in all sorts of forms, owing to the mine having been flooded some time ago. It is now getting into better shape. The vein is a difficult one to work, it being very changeable in its character. The mine is not very well drained, but efforts are being made by the superintendent to get it in a better condition. The ventilation is a difficult one, owing to the base of operation being changed so often by water and bad top. Under these circumstances, it is a difficult task to permanently locate air-courses. It will require some time to get it in proper order, and will then require a constant watch on the part of the inside boss to keep the air up to the face of the work. Good doors and brattice must be used, and put up promptly when required. As soon as the mine is in working order, a furnace will be essential for proper ventilation.

CLERMONT MINES.

Operated by the Buffalo Coal Company. Located at Clermont, McKean county, the terminus of a branch road twenty-three miles long, connecting with the Buffalo and New York railroad. Mr. G. Macfarlane, general manager and mining engineer.

The mine is ventilated by furnace, and is at present worked on the double-heading system. This company have two openings, one of them having been put in operation since my last report, and is located three and a half miles from Clermont, the coal being hauled from it by a small locomotive. Since my last report, several changes for the better ventilation of the mine have been made, the double-heading system of working has been adopted, and more attention paid to the doors and brattice, so that I find a better current of air at the face of the work. At the new drift, every arrangement is being made to have the mine thoroughly ventilated and drained. Double-headings are being driven, so that the air can be kept up to the face of the work. An air-shaft has been put down, and a good ventilating furnace is soon to be put in. From present indications, I have no doubt this mine will be first-class in every respect.

MOSHANNON MINES.

Operated by the Moshannon Coal Company. Located four miles from Osceola Mills, on the Moshannon branch of the Tyrone and Clearfield railroad, in Clearfield county. P. B. Zentmyre, superintendent. Ventilated by furnace, and worked on the single-heading system. This company are

operating three drifts. One of them is an old one about worked out, the other has been put in during the last year, in the hope it would strike the main seam of coal. After going in some distance, it proved to be a set-off of the vein. Considerable coal can be taken out, but the coal territory will be limited.

The main or plane drift is the one in which most of their coal is mined. It is well drained, and has a good ventilating furnace in it. The ventilation is very good, and taken upon the whole, a fair current of air was found around the face of the work. All that is necessary in this drift is to keep a good fire on the furnace, and the doors closed when not in use, and see that the brattice are promptly put up when required.

STERLING MINES.

Operated by Robert Hare Powell. Located at Sterling, near Houtzdale, Clearfield county. Ventilated by furnace, and a large part of the mine worked on the single-heading system. Mr. Edward McHugh, general manager.

This company has three drifts in operation; two of them are known as Sterling No. 1, the other as Sterling No. 2. At the former a mine locomotive hauls the coal out, a special ventilating furnace being provided in each drift for the ventilation of that part of the mine in which the locomotive is used.

Mr. James Campbell, the mine superintendent, has made many improvements since my last report. He has changed the plan of his work, getting it in proper shape b · putting it all on the square, and when he has completed his plans the mine will present a good appearance, all being worked at right angles. With the changes made, the mine will be more easily ventilated; the air currents will be strictly confined to their proper channels, and not allowed to scatter over the entire work. During my last visit, I found the mine well drained, and the ventilation very good, except in one or two headings where, as Mr. Campbell explained, his arrangements had not yet been completed. Sterling No. 2, is located about one mile from the former, and is a difficult piece of ground to w>rk. It is cone-shaped, the vein rising to a point from all sides; but Mr. Campbell has succeeded admirably in conducting this piece of work. It is very well drained, and I found the air well distributed around the face of the mine. At this drift connection will soon be made with another piece of coal territory, when, as Mr. McHugh, the general manager, informed me, a large ventilating furnace will be put in.

FRANKLIN MINES.

Located near Houtzdale, Clearfield county. Operated by the Kittanning Coal Company. James R. Cameron, general manager and mining engineer. Ventilated by furnace, and worked partially on the double-heading system. The company have two drifts in operation, one of them

being but very little worked; the other is worked quite extensively, a mine locomotive hauling the coal out. The ventilation of this mine is effected by a large furnace, the dimensions of which were mentioned in my last report.

The inlet for ventilation is made through an old drift, the air coming in, passing through and around the face of the work, finally reaching the furnace, which is located near the terminus of the tunnel in which the locomotive runs. By this means of ventilation there can be no danger of the gases from the locomotive reaching the men inside, and by opening a door, provided for that purpose at the mouth of the drift, a current of air is allowed to enter, clearing the locomotive tunnel of all smoke and gases.

This mine has been a difficult one to work from the time it was started. Several bad dips have been met with, and the mine has a large number of what are known as clay veins. The vein suddenly breaks off, leaving in its place a hard mixture of bone, coal, slate, and tough clay; this sometimes will extend several yards; in this case the base of operation has to be changed. Such sudden breaks in the vein make it a difficult task to conduct a work and properly ventilate it.

Notwithstanding, Mr. James R. Cameron and his assistant have got the work in good shape. While the clay veins seriously interfere with the proper ventilation of the mine, yet the difficulty has been overcome, and the air-courses kept open with the rooms or breasts; thus a current of air is sent around the face of the work. With the details attended to, there can be no trouble with the ventilation.

EUREKA MINES.

Located near Houtzdale, Clearfield county. Operated by Berwind, White & Co. Mr. Peter Cameron, superintendent; ventilated by furnace.

I expected to have reported this mine as worked out, but they are yet drawing back the gangway pillars; and Mr. Peter Cameron is doing all he can to keep a good current of air at the head of the work while they are being drawn out, which will be in a short time.

PENN MINES.

Operated by Reakirt Brothers & Co. Located near Houtzdale, Clearfield county. Mr. David E. Conrad, superintendent; ventilated by small furnace, and worked on the single-heading system. The company have two drifts in operation; in one of them very little coal is taken out. As to the mode of working, as stated in my previous report, it is difficult to work on any plan. The ground is rolling, and the vein varies from a few inches to its regular thickness. This makes it not only a difficult task to ventilate, but to work. Mr. George Gould, the inside boss, has done a great deal during the past year to improve the condition of the air, by overhauling all the old air-courses, and putting up doors and brattice, and attending to other details, and at my last examination I found a fair current of air passing around the face of the work. Mr. Gould will have to keep a close watch

over all the air-courses, to see that no air is allowed to escape. As the furnace is small, a good fire must be kept up all the time the men are at work in the mine.

BEAVER RUN MINES.

Operated by J. E. Leskie & Co. Located on the Moshannon Branch railroad, two miles above Houtzdale, Clearfield county. T. C. Donnelly, superintendent; ventilated by furnace, but as stated in my last report, the furnace was put in the wrong part of the mine, and was evidently put in its present position to avoid sinking an air-shaft, that would require to be of some depth. As to the mode of working this mine, very little can be said. It has passed into the hands of so many companies, and each seems to have had but one object in view, viz: To get all the coal out of it they could, irrespective of any particular plan of working it. Upon the whole, this mine has been badly managed. I trust the present company will keep it, as I have made arrangements with the present superintendent to get the mine in proper shape for ventilation.

GOSS RUN MINES.

Operated by Berwind, White & Co. Located on Goss Run, near Houtzville, Clearfield county. W. A. Crist, general manager; Peter Cameron, superintendent and mining engineer; mine ventilated by furnace, and worked on the single-heading system; one drift in operation. An examination of this mine showed a well-conducted work. The plan of working on the single-heading system is strictly adhered to. Parallel headings are driven, and the rooms turned off at right angles. The arrangements for a thorough ventilation of the mine is excellent. A good current of air is sent up each heading, and there should be no trouble in having a current of air reach the face of the work at all points if all the doors are kept properly closed and brattice put promptly up when required.

The arrangements for a good current of air to pass all around the work from the inlet are very satisfactory.

OCEAN MINES.

Located on the Goss Run Branch railroad, near Houtzville, Clearfield county. Operated by John Whitehead & Co. Mr. John Whitehead, general manager; A. G. Spears, superintendent. Ventilated by furnace, and worked on the single-heading system, operating two drifts.

This mine has been doing a large business during the last two years, and at one time was worked up to its utmost capacity, and I had some doubts whether the mine could be properly ventilated, but Mr. Whitehead spared no pains to have the mine kept in good order. He has given orders to his inside bosses to be prompt in doing what is needed to have the mine properly ventilated. An examination of the mine showed the ventilation was not neglected, and that provision was made from time to time to keep the mine in such a condition that a good current of air could be circulated

around the face of the work. Upon the whole, I found the mine very well ventilated. Some places were found where the air did not circulate freely, but Messrs. Powell and Rowland, the inside bosses, at once made arrangements to have the defects remedied. They show a disposition to do all in their power to have their mine come fully up to the requirements of the law.

WEBSTER MINES.

Located on Goss Run Branch railroad, near Houtzville, Clearfield county. Operated by the Webster Coal Company, limited. Philip Hartman, superintendent; ventilated by furnace, and worked on the single-heading system.

This company has two drifts in operation, and doing a fair business. This mine has two good ventilating furnaces, and at every visit made to this mine, I have found good fires on them, (a very essential matter where a mine is ventilated by furnace.) An examination of the mine showed it to be well drained, and taken upon the whole, is very well ventilated. Mr. Hartman has got his work in good order. His arrangements for ventilation are systematic. I found a very good current of air going up each heading, and with the proper doors and brattice, can be made to circulate around each man's room or breast. With good furnaces, and the air-courses all right, all that will be needed to insure the thorough ventilation of Webster mine, is to see that the brattice is put up promptly when required, and a strict watch kept on the doors, to see that they are closed after trains of cars, or persons pass in or out.

EXCELSIOR MINES.

Operated by Fisher & Miller. Located on Goss Run Branch railroad, near Houtzville, Clearfield county. Thomas Richards, superintendent; ventilated by furnace, and worked on the single and double-heading plan; one drift in operation.

This mine is a long distance in the working territory, being narrow, the work advances rapidly, but arrangements are being made to open it up at another point. The mine has a good ventilating shaft and furnace, and Mr. Richards has made many improvements since I first visited the mine, and at present writing has got his work very well arranged. He has paid more attention of late to the doors, and has not allowed his headings to be driven ahead of the air.

At my last examination I found the mine very well drained, and with a few exceptions, the ventilation very good. Mr. Richards is taking quite an interest in having his mine worked and ventilated as it should be. I found good air-courses, with doors in proper places to direct the air-currents, and if he will keep a close watch over the air, and allow none to escape, as it has a long distance to travel before it reaches the different splits, he will have no trouble in conducting it around the face of the work.

MAPLETON MINES.

Operated by Berwind, White & Co. Located on the Laurel Run branch of the Clearfield and Tyrone railroad, two miles from Osceola Mills, Clearfield county. W. A. Crist, general manager; worked on the single-heading system, and ventilated by furnace. This mine is not very extensive, but has a good ventilating furnace.

Mr. John Allan, the inside boss, has got his mine in good shape, and very well arranged for a current of air to pass from the inlet around the face of the work.

During my last examination of this mine, I found a good current of air at the extreme end of the work, showing that the air reaches its destination before returning to the outlet. It is necessary to see that it is not allowed to return before it is sent to each working-room or breast. It will require doors and brattice to accomplish this, which Mr. Allan is having put up from time to time. This part of the work, so necessary to carry out the ventilation of a mine, should under no circumstances be neglected.

The mine, as a whole, is well drained, and the ventilation very fair. A few alterations were needed, which Mr. Allan said should be promptly made. He is very anxious to have his mine properly worked and thoroughly ventilated, and from present indication, if he attends to the minor details mentioned above, he will succeed.

LAUREL RUN MINES.

Operated by Nuttal & Bacon. Located on the Laurel Run Branch railroad, Clearfield county. John Nuttall, general manager; George W. McGaffey, superintendent; ventilated by furnace, and worked on the single-heading system.

I find this mine in a very good condition. Since last reported many improvements have been made. The old air shaft and furnace did not prove satisfactory for the proper ventilation of the mine, which made it necessary to have a new air shaft, which was put down near the face of the work, and a new ventilating furnace put in that proves very satisfactory.

Mr. Thomas W. Asheroft, the inside boss, understands one great *desideratum* in the ventilation of all mines, viz: taking care of a current of air after he has got it.

Too often I find a good current of air at the start, but before it reaches the face of the work the larger part of it is lost, and finds its way into the return air-course With a little attention on the part of the inside boss, this could be avoided. The value of a good fan or furnace is lost by neglect in not using the necessary precaution to kee the air-current intact until it has accomplished the end desired. Mr. Asheroft looks at it in the right light—if it is worth while putting up a fan or furnace to get a current of air, it is certainly worth taking care of.

LOGAN MINES.

Operated by Henry Liveright. Located on the Laurel Run branch railroad, Clearfield county. Henry Liveright, general manager; William Fitzgerald, superintendent and inside boss; ventilated by a small furnace; one drift in operation.

The mode of working this mine cannot be stated. It has been worked in so many different ways it would be impossible to describe it, and has passed through the hands of so many companies, each one holding it but a short time, that it was almost impossible to get anything done in the shape of ventilation and drainage.

The mine was not properly opened in the first place, most of the work lying all to the dip, and has been badly worked ever since. Mr. Henry Liveright has recently taken it, and, I trust, will keep it for some time, or at least until something can be done to get it in shape for proper drainage and ventilation.

At my last visit I found it in a very poor condition—the drainage bad, and the ventilation not good. I laid the facts before Mr. Liveright and his superintendent. Mr. Liveright stated he should see that the mine was put in order and properly ventilated, and, as I went around the mine with Mr. Fitzgerald and pointed out the defects in regard to doors and brattice, he also stated he would do his part, and the necessary doors and brattice should be immediately put up, and the proper air-courses driven.

If the mine is opened to any great extent, a new furnace will be needed, and I trust Mr. Fitzgerald will see to it that there will be no more trouble with the ventilation and drainage of Logan mines.

READING MINES.

Located on Laurel Run Branch railroad, one mile from Osceola Mills, Clearfield county. Operated by Liveright & Co.

This mine, as mentioned in my last report, caused me considerable trouble, but is at present in good order. The mine, after having changing hands several times, is at present operated by Mr. Henry Liveright who, at my request, had a shaft sunk and a good ventilating furnace put in.

Mr. Liveright having now control of the Logan mine also, I trust I will have no further trouble with them, as he is anxious to do what is right and have his mines come fully up to the requirements of the law. Reading is at present not in operation, but as business is reviving, it soon will be. The mine can be easily ventilated, as the proper means are at hand.

GLENWOOD MINES.

Operated by Coulter & Huff. Located on a branch of the Tyrone and Clearfield railroad, Clearfield county. C. R. Colburn, superintendent; ventilation by furnace, and worked on the single-heading plan.

This company have two drifts, only one being in operation at the present time. This drift I found well drained, and, upon the whole, the ventilation was good. Mr. Colburn has taken great pains to get his mine properly ven-

tilated and drained. He has been careful to see that brattice was put up at the proper time and place, and the ventilating doors kept properly closed. Let him be as vigilant in the future as in the past, and Glenwood will be well ventilated.

DECATUR MINES.

Located on the Morrisdale branch of the Tyrone and Clearfield railroad, Clearfield county. Operated by John Nuttall & Co. Ventilated by furnace, and worked partially on the single and double-heading system. One drift in operation.

John Nuttall, general manager. Mr. Nuttall has taken a great deal of trouble to ventilate and drain this drift. The position of the first furnace and shaft to ventilate the mine was not satisfactory, another shaft was put down near the face of the work, and the furnace removed to it, which seems to be, so far, satisfactory, but, as is too often the case, the air produced by the furnace was lost, for want of the proper doors and brattice. During my last examination of the mine, I found that part of the mine where the air-current in its return passes through a section of working rooms all right, but on the left, and dip side of the gangway, where the air should be fresh from the inlet, it was allowed to escape, for want of the proper doors and brattice. This is much to be regretted, as Mr. Nuttall has spent time and money in trying to have his mine come fully up to the requirements of the law. I called the attention of Mr. Charles Long, the inside boss, to the facts, and he stated steps should at once be taken to have the defects remedied, and more care used in the future. Mr. Long is a practical man and understands his business, and if he will put his knowledge into practice in the future, Decatur will be what Mr. Nuttall designed it should be, a well ventilated mine.

MORRISDALE MINES.

Operated by R. B. Wigton. Located at Morrisdale, at the terminus of the Morrisdale branch of the Tyrone and Clearfield railroad, Clearfield county. W. H. Wigton, superintendent; ventilated by furnace, and worked partially on the single and double-heading plan. Four drifts are in operation; two of them are about closing up, the last of the remaining pillars being taken out. Drift known as No. 1 has been in operation for a long time, but is now, to a certain extent, being opened up anew.

I examined this mine thoroughly, and the only difficulty was, the work was too much scattered for the amount of air received. But this will be of short duration, as Mr. T. M. Lewis, the inside boss, will soon have his work in a smaller compass. I examined his plans for ventilating the mine, after he had got his work more concentrated, and think he will have no trouble in getting a good current of air around the face of the work. The drainage is good, and the ventilation, taken as a whole, is very fair. I found some sections of the mine that were nearly finished, where the air did not circulate freely, but as stated above, Mr. Lewis will soon have all his

men working where he can get a direct current of air, and have his mine well ventilated. A new drift is being opened on the other side of the hill from which the present work is located, communication being made through drift No. 1 to it.

At my last visit, this drift was being put in, but every arrangement for a thorough ventilation of it will be made, as Mr. R. B. Wigton, and his son, acting superintendent, have spared no pains in doing everything they could to have their mines properly ventilated. Furnaces have been promptly put in all new drifts, but on account of meeting with faults and impure coal, some of the drifts had to be abandoned.

SANDY LICK MINES.

Located near Du Bois, Clearfield county, on a branch road leading from the Allegheny Valley railroad. William Sharp, general manager, worked on the single-heading system; ventilated by steam jet and small fire. The mine is drained by steam-pump, and as it is on the dip of the vein, and large fissures in the top allowing large quantities of water to come in during the rainy season. Considerable trouble is experienced during the spring and fall. I found the mine under water on the occasion of some of my visits. Mr. Sharp has now provided for all emergencies, by having pipes large enough put in to carry off all the water that will accumulate.

The steam jet with small fire will do very well for the present to ventilate the mine, but as the work is extended, a ventilating furnace will be needed.

I found a very fair current of air around the face of the mine, and as no pillars are drawn back in this mine by stipulation in the lease, the air current can be better regulated. The plan of the work is very good, and by proper care on the part of the inside boss, there should be no trouble with this mine.

ROCHESTER MINE.

Operated by the Rochester Coal Company. Located on a branch road leading from the Allegheny Valley railroad, Clearfield county. Ventilated by furnace, and worked on the single-heading system. F. A. Bell, general manager. Arthur McHugh, superintendent. Worked with a mixture of the single and double-heading system.

Mention was made in my last report of a fire lamp being used to ventilate this mine. Last May a good ventilating furnace was put in, and with the very good arrangements Mr. McHugh has made for conducting a current of air around the face of the work, the mine can be thoroughly ventilated.

In a courteous correspondence with the operators of this mine, Bell, Lewis, and Yates, they expressed a desire to have all the requirements of the law carried out, and in my intercourse with Mr. McHugh, their superintendent, I also found him anxious to do what is right, and keep his mine in such a shape that no fault can be found with it. At present the

drainage is good and the ventilation very fair, and with a proper attention to details, the mine will be all right.

MOUNT HOPE MINES.

Located near Cameron, Cameron county, on the Philadelphia and Erie railroad. Operated by Jacob Elias & Co. Worked partially on the double-heading plan. Ventilated by furnace. This work is not large. The company operating one drift, the coal being hauled two and a half miles to the head of a plane, by a small locomotive.

An examination of this mine showed it to be in a very good condition. The drainage is good and the ventilation at the face of the work very fair, except in one or two places, caused by the air escaping through a defective dirt brattice. I called the attention of Mr. John Morris, superintendent and inside boss, to it, he stated he was aware of the fact, and the entire ventilation of the mine was injured by the escaping air; but he had taken steps to have everything secure. When this is secured, the mine can be properly ventilated. Mr. Morris is a practical man and seems to understand his business, and with the small territory at his command is doing very well.

This mine is troubled with the fire-clay bottom heaving when exposed to the action of the atmosphere. This is sometimes a source of trouble, and especially in the air-courses, which have to be constantly watched, or they choked up.

If Mr. Morris will attend to the doors and brattice, and watch the air courses, the mine can be properly ventilated.

If those having small mines under their charge ventilate and conduct them properly, they deserve quite as much credit as those having charge of larger ones.

SNOW SHOE MINES.

Operated by the Bellefonte and Snow Shoe Railroad Company. Located near Snow Shoe, Centre county, at the terminus of the Bellefonte and Snow Shoe railroad. Mr. Daniel Rhoads, general manager; Mr. John Somerville, superintendent.

The company are at present operating two drifts worked on the single-heading plan. Arrangements for the ventilation of this mine have been in progress for some time. Mention was made in my last report of a new drift that was being put in. This drift was to connect with an air-shaft that had been put down some time before, for the purpose of ventilating another drift.

During my last visit I found communication with the shaft completed, and as this was the place to locate a furnace, I at once brought the fact to the notice of Messrs. Rhoads & Somerville, and requested one to be put in. Mr. Rhoads stated my request should be complied with, and a furnace put in as soon as possible. Mr. Alexander Houston, the inside boss, has made all the other arrangements necessary for a good current of air to be sent around the face of the work when the furnace shall be put in.

Considerable difficulty has been experienced in making proper air courses on account of some very bad faults that have been met with, causing the vein to be thrown up or down, as the case may be.

The plan of the work is very good, and with the new furnace, Mr. Houston can keep his mine properly ventilated at all seasons of the year, which would be impossible with natural ventilation.

POWELTON MINES.

Operated by William J. Jackson. Located at Powelton, Centre county, on the line of the Tyrone and Clearfield railroad. William J. Jackson, general manager. Samuel Twiggs, superintendent and inside boss. One drift is in operation, worked on the single-heading plan.

This mine for some time past has not been running very steady, but as trade revived the mine was started on nearly full time, and required to be properly ventilated, which could not be done by natural ventilation, by which it is ventilated. I at once requested Mr. Jackson to put in a ventilating furnace, as it was very essential to have one immediately. Mr. Jackson wrote to me that a furnace should be put in as soon as he could get the requisite fire-brick. During my last examination I found the mine well drained, and the ventilation as good as it could be with natural ventilation. Mr. Twiggs has made many good improvements in this mine since my first examination, and has now got it in such a shape that with a furnace, and proper attention to the doors and brattice, he can get a good current of air around the face of his work.

ROBERTSDALE MINE.

Located at Robertsdale, Huntingdon county, at the terminus of the East Broad Top railroad. Operated by the Rockhill Iron and Coal Company. A. W. Sims, general manager. James Finley, superintendent and inside boss. Ventilated by furnace worked on the plan of a single-heading in some parts of the mine. In other parts the plan of double-headings is adopted.

This company have a large coal territory, with four drifts and a shaft opened on it. Some of the drifts are worked but very little. The shaft having been lately put down, no arrangements have yet been made for the proper ventilation of it.

In some parts of this work ventilation is effected by means of double-headings, one above the other. The vein, or two veins, are separated by a natural strata of slate, three to four feet in thickness, headings being driven and holes cut through the slate for ventilation every six or eight yards. An examination of the entire work showed an average circulation of air through the mine. In one of the drifts, the working parts are spread over a large area, requiring a large number of doors to direct the current of air to the different parts of the mine. These doors are often left open by neglect, the result is a stagnation in that part of the mine. In several parts examined, I found this to be the case. The inside boss cannot be

too strict in having all ventilating doors properly closed, when persons or cars are not passing through. The plan of the work is very good, but will require vigilance on the part of those having it in charge, to see that the brattice is put up in time, and in its proper place, and that good ventilating doors be used to direct the different currents of air. The furnace being the motive power of the air-current, a good fire at all times during working hours should be kept up, the air courses must be watched, and no escape of the air allowed, and holes be put through from room to room, not too far apart, for the purpose of circulation. And above all, no work should be driven ahead of the air-current, except the advance headings, and then only a few yards. All this will require constant care on the part of the inside boss.

Robertsdale mine can be thoroughly ventilated, but will require personal attention from time to time, to see that the ventilating arrangements are all in good order. The ventilation, on the whole, is not bad, but will need improving, which can only be done as stated above. Vigilance is necessary to insure a well ventilated mine.

CARBON MINES.

Operated by Mears Brothers. Located near Broad Top city, at the terminus of the Broad Top and Huntingdon railroad, Huntingdon county. J. F. Mears, superintendent; worked on the single-heading plan; natural ventilation; one drift in operation.

The work is small, and has not been doing much for some time. Natural ventilation is used, but as the mine is small, and but few men are employed, there can be little or no trouble with the ventilation while the drift lasts, for the peculiar geological formation of this coal field, makes it impossible to open up a piece of coal, with the expectation that it will last for many years.

Mr. Mears has expressed himself as anxious to do all in his power under the circumstances to have his mine well ventilated and drained. An examination of it showed a fair current of air passing through the mine, and the roads well drained. With a little attention, Mr. Mears need have no trouble.

MOREDALE MINES.

Located at Moredale, near Broad Top City, on the line of the Broad Top and Huntingdon railroad, Huntingdon county. Operated by Reakirt Brothers & Co. David E. Conrad, superintendent; worked on the single-heading plan; natural ventilation; one drift in operation.

This mine has been worked under a great many difficulties, and the managers deserve much credit in overcoming them. The old drift mentioned in my last report as being dangerous on account of the crush, has been finished, operations being confined to the new one. Mr. James Williams, the inside boss, is doing all he can under the circumstances, to keep his mine in good order, and properly ventilated. If the field of coal they are

trying to reach with the present drift proves a success, a good ventilating furnace will be put in. Messrs. Conrad and Williams are anxious to do what is right, and by proper attention to the doors and brattice, will be able to ventilate the mine, until the work becomes more permanent.

An examination of the mine showed a very good current of air passing around the work, excepting in one or two places that was driven ahead of the air. I informed Mr. Williams he must be more careful in the future, and under no circumstances let any of his work get ahead of the air current.

POWELTON MINES.

Operated by Robert Hare Powell. Located near Dudley, on the line of the Huntingdon and Broad Top railroad, Huntingdon county. Jonah Reed, superintendent; working one drift; natural ventilation.

Little can be said of this mine but what has been reported before; the mine doing but very little. As Mr. Powell is now building some smelting furnaces for the manufacture of iron, and intends to use the coal in the shape of coke. The mine will be run to its full capacity, and Mr. Edward McHugh, the general manager, stated to me it would be entirely overhauled, or, in other words, re-opened. A new gangway is to be driven, and the work put in order, properly drained, and ventilated.

LLOYDS' MINES.

Operated by the Bell's Gap Railroad Company. Located at Lloydsville, on the Bell's Gap railroad, nine miles from the line of the Pennsylvania railroad. R. G. Ford, general manager. Ventilated by a twelve foot fan. Worked partially on the single-heading plan. Most of the headings being double; one drift in operation. For some time past this mine has been troubled with some very bad faults, but they have been successfully overcome, and at my last examination I found the mine in good order and very well ventilated, a good current of air being found at the face of the work. Mr. Dawson, the inside boss, is a competent man, and has got his work well arranged.

HORSESHOE MINES.

Operated by S. C. Baker. Located two and one half miles from Kittanning Point, on the Pennsylvania railroad, Blair county. Andrew Patriek, superintendent; worked on the single-heading plan; ventilated by furnace; one drift in operation.

Since last reported, a furnace has been put in this mine, but did not prove satisfactory, not meeting the expectations of the superintendent.

Mr. Andrew Patrick is now putting down a ventilating shaft near the face of the work, and will build a good furnace in connection with it. Part of this mine has heretofore been imperfectly drained, and is now allowed to fill up, a heading being driven over half a mile from the dip side of the vein, on the opposite side of the mountain to drain it. An examination found it

to be very well ventilated, but the current of air was not sufficient to carry off any extra smoke made by firing shots. In a mine where little or no powder is used it would be all right. Mr. Patrick will remedy all this with his new ventilating furnace, and from an examination of the locality in which it is to be placed, I have no doubt it will prove entirely satisfactory, and after the drain heading is through, the mine will be in a good condition.

GLENWHITE MINES.

Operated by the Glenwhite Coal Company. Located three miles from Kittanning Point, on the Pennsylvania railroad, Blair county. David McCoy, general manager; ventilated by small furnace; worked on the single-heading plan.

An examination of this mine showed the great fault of too many inside bosses, viz: driving their work ahead of the air current, and neglecting to keep the ventilating doors closed when not in use.

The small furnace would ventilate the mine very well if the inside boss, Joseph Eichenlaub, had not got his working-room ahead of the air. I also found a ventilating door, that directed a current up the heading, propped open by a mule driver. Mule drivers, transgressing the law in this way, must know they are liable to be arrested and fined. I told Mr. Eichenlaub I hoped he would never get his mine in such a condition again. He appeared to realize the situation, and stated he should get his air-courses up immediately, with the proper doors and brattice, and that I could depend on him to have his mine all right in the future. The part of the mine that was not driven ahead of the air I found well ventilated, but, as the mine is opened up and more men employed, a larger ventilating furnace will be needed.

PORTER MINES.

Located one mile from Bennington, on the line of the Pennsylvania railroad. Operated by Porter, Denniston & Co. This company have a shaft, the coal being brought to the top of the shaft by the usual hoisting engine and cage. C. H. Porter, general manager; worked on the single-heading plan. The managers of this mine, as stated in my last report, had considerable trouble with their air-courses, the pillars supporting them being crushed in, a new air-course was driven, which did not prove satisfactory, the air scattering too much over the old workings. Mr. Porter, a manager who attends to such matters in person, determined to have an air-course in the solid coal, near the face of the work, which he has just completed this fall. A ventilating shaft has just been sunk, at considerable expense, at the head of the work; and when the furnace, which is to be put in, is completed, I have no doubt, he will have no further trouble with his air-courses. Under this new arrangement, the ventilation of Porter mine will be greatly improved. If Mr. John Leonard will see to it that his working-rooms are not driven ahead of the air-course, and keep the air-ways in good condition, he will have no trouble.

SONMAN MINES.

Operated by W. H. Piper & Co. Located near Lilley's Station, Cambria county, on the line of the Pennsylvania railroad. John Leahey, superintendent; ventilated by furnace. Worked on the single-heading plan. Two drifts in operation, in one of these very little coal is mined, and before it can be properly ventilated connection must be made with the other drift, when both can be ventilated by the one furnace. An examination of this work showed a very good current around part of the work, the other part was driven ahead of the air current, and very little circulation was found. I called the attention of Mr. Leahey to the fact, and he admitted that the necessary air-courses were not driven up in time, but should attend to it at once. This is a very common fault that I find too often, and no inside boss, under any circumstance, should allow it. Nothing is saved by it, as the expense is the same in the end. Air must be taken.

If Mr. Leahey will attend to his air-courses and see that cross-holes for circulation are put through at proper distances, he will have no trouble in ventilating the mine; provided, always, that a good fire is kept on the furnace.

BEN'S CREEK.

Operated by S. H. Smith & Co. Located near Lilley Station, Cambria county, on the line of the Pennsylvania railroad. S. H. Smith, general manager. John Leap, superintendent and inside boss; one drift in operation; natural ventilation.

An examination of this mine showed it to be very well drained, but the ventilation was imperfect, owing to Mr. Leap not putting brattice up and driving air-courses in time to connect with the work in progress. This work can be easily ventilated by driving a heading through to day-light at almost any point in the mine; and there should be no trouble in ventilating it. This important work of putting air-holes through to connect one working with the other, and form a circulation, is too often neglected. Mr. Leap has got his mine in very good shape, and the ventilation, where the proper air-ways are driven, is very good; and if he will keep them close to the face of his work with the proper brattice, he will have no trouble.

Mr. Smith, the general manager, is anxious to have his mine come fully up to all the requirements of the law, and do what is right in every respect; and I trust in the future the mine will be thoroughly ventilated, and the defects, as stated above, be avoided.

LILLEY'S MINE.

Located one mile west of Lilley's Station, Cambria county, on the line of the Pennsylvania railroad. Operated by Carson Leahey. Worked on the single-heading system; ventilated by furnace. Thomas Leahey, superintendent.

This mine is an old one, and has lately been re-opened, and coal is being taken out from the old workings for the present; but a new gangway is being driven to open up a new field of coal to the left of the present work, and eventually the balance of the coal will be brought through the same channel.

A new ventilating furnace has been put in, and arrangements have been made to drain and ventilate the new piece of work properly.

An examination of the mine, as it stands at present, showed a very good current of air around the face of the work.

The mine is well drained, but I found one defect in the air-course—it goes through some old workings that are falling in from time to time, and obstructing the passage of the air-current. All this will be remedied as soon as the new opening is finished, and connection made with the old work, which will be but a short time. I have no doubt when the work is properly opened, Mr. Leahey will have everything in good shape, and his mine properly ventilated and drained.

OLD SOUTH FORK MINE.

Located at South Fork, Cambria county, on the line of the Pennsylvania railroad. Operated by the South Fork Coal Works Company. Mr. George B. Stineman, general manager; Henry Dunmire, superintendent; one drift in operation; natural ventilation; worked on the single-heading plan.

This mine has lately commenced operation. It is an old work, and has not been running during the late stagnation of trade. Now that business is reviving, a new company was organized, and have commenced shipping coal. I examined the mine soon after starting, and found it in a very bad condition—air-ways broken down, no doors or brattice, and but very little air at the face of the work.

I had an interview at once with Mr. Stineman, and told him that steps must be taken immediately to ventilate this mine, if it is carried on. He stated the necessary alterations to insure the proper ventilation of the mine should be made without delay. I communicated with him by letter since my visit, and find he is progressing with the improvements.

Another visit will soon be made to see that all the necessary improvements are completed.

ARGYLE MINES.

Operated by the Argyle Coal Company. Located at South Fork, Cambria county, on the line of the Pennsylvania railroad. One drift in operation; David W. Luke, superintendent; natural ventilation.

This mine, like several others, has commenced operation with the revival of trade. It is a small mine, and has many difficulties in the shape of rolls in the coal, and bad local dips. These may be passed through, and a good field of coal entered. I examined the mine, and found it in a bad condition; no ventilation, except through a very small shaft, and that ready to fall in; no proper air-courses were found; nothing in the shape of doors or brattice, and the air very poor at the face of the mine. I stated to the superintendent that this state of things must be changed, and the mine properly ventilated, and the air-shaft enlarged, and that I would communicate with Coulter & Huff, the operators of the mine.

Steps are being taken to ventilate the mine properly, and I shall give it

my individual attention, and see that the necessary improvements are carried out.

STINEMAN MINES.

Operated by J. C. Stineman. Located at South Fork, Cambria county, on the line of the Pennsylvania railroad. J. C. Stineman, superintendent; one drift in operation.

This is one of the works at South Fork, that has, on the revival of business resumed operation. The mine is not large, but is in a nice field of coal. An examination of the mine, found it in the same condition as the other mines around South Fork, that have lately started up. The owner and superintendent did not seem to realize that his mine was badly ventilated. I informed him the day had gone by when mines could be worked in that condition in Pennsylvania.

An air-shaft had been put down, but no air-ways, doors, or brattice, to direct the current of air could be found. After some conversation on the subject, Mr. Stineman saw there was no other alternative than to comply with the law, and get his mine in shape for ventilation. In my future visits, I shall see that all the necessary changes are made to secure a good current of air around the face of the work.

BENNINGTON MINE.

Operated by the Cambria Iron and Coal Company. Located at Bennington, Blair county, on the line of the Pennsylvania railroad.

The company have one shaft and a drift in operation. Mr. John Fulton, manager and general mining engineer, Martin Meagher, superintendent and inside boss; worked on the single-heading plan. Drift and shaft ventilated by two six-foot fans, known as the Murphy fan. The shaft and drift communicate with each other, most of the coal coming out of the shaft. An examination of the hoisting gear, found all in good order. A small Baxter engine drives the fan, it having no connection with the hoisting engine or boilers.

And here let me speak in the highest praise of this fan. It has been in operation over two years, and runs as smoothly and is in as good order as when first put up. During my examination of the mine, I found it gave a uniform current of air at all points of the work. With this fan there should not be the least trouble with the ventilation of Bennington shaft. At my last examination, I found everything satisfactory, and a good current of air passing around the face of mine, with the exception of one or two places that Mr. Meagher allowed to be worked ahead of the air-current. Mr. Meagher stated he should stop the places until the air-course was up, and in the future I should find every working place in Benniugton shaft well supplied with air.

Since my first visit, some very important changes in this shaft has been made. One, in particular, I will mention. A new gangway has been driven across the work, which will shorten the distance to haul the coal, and make the grade more uniform. The plan of the mine is good, and with well ar-

ranged air-courses, for conducting the air around the face of the work, (admitting the rooms should not be driven ahead of the air,) and such a good fan to drive it, their Bennington shaft should be second to none in the State for ventilation.

JOHNSTOWN MINES.

Located at Johnstown, Cambria county, on the line of the Pennsylvania railroad. Operated by the Cambria Iron Company. John Fulton, manager and general mining engineer; John Cameron, mining superintendent.

The following are the drifts in operation:

Rolling-Mill mine, ventilated by two eight-foot Murphy fans. Coal hauled out by a mine locomotive. The tunnel or gangway that the coal is hauled through is one and one quarter mile long.

Woodvale mine, ventilated by furnace.

Gautier mine, ventilated by furnace.

Conemaugh mine. This mine is located three miles above Johnstown, at Conemaugh. Ventilated by furnace. Since last reported, one slope has been abandoned, all the available coal being worked out. The rest are in full operation.

Since my last report an important improvement has been made in Rolling-Mill mine. The coal is now hauled out by locomotive, as stated above, and the ventilation effected by two eight foot fans. A full description of which, from the pen of Mr. John Fulton, will be found embodied in this report. Not having visited Rolling-Mill mine since the tunnel was completed and the fans put in operation late last fall, I am unable to say anything in connection with the above improvements from personal inspection at this time, but will endeavor to give my views in next report.

Woodvale mine is a small work, employing only a few men, and is well ventilated. An examination showed a good current of air around the face of the work. One or two rooms were found deficient, on account of the men that worked in them neglecting to put the usual holes through the pillars. The plan of the work is good, and if the inside boss will see that the men put the proper holes through the pillars, so that a current of air can pass from room to room, the mine will be properly ventilated.

Gautier, another small mine, which I examined lately, and found all satisfactory, the air freely circulating around the face of the mine.

Conemaugh mine is not large, but is well supplied with air, a good current circulating around the work at all points.

These three small works mine from seventy-five to one hundred tons a day, each. Rolling-Mill mine supplying the great bulk of the coal needed in the manufacture of iron in the extensive works of the company.

In the ventilation of the bituminous mines of this company no expense has been spared, and Mr. John Fulton has been indefatigable in his efforts to have the mines under his charge come fully up to the requirements of the law. Mr. John Cameron, mining superintendent, has also done much towards bringing the mines up to their present standard.

A STATEMENT *of the Names, Power, Capacity, and Ventilation in the vania, for the Month*

NAME OF COLLIERY.	NAME OF OPERATOR.	Character of coal—bituminous or semi-bituminous.	Slope.	Drift.	Shaft.	Fan.	Furnace.	Number of headings.	Pumps—how many.
Carbon Run,	Schraeder Coal Company,	Semi-bitnm.		1			1		
Carbon Run,	do. do.	do.		1			1		
Carbon Run,	do. do.	do.		1			1		
Carbon Run,	do. do.	do.		1			1		
Barclay,	Towanda Coal Company,	do.		1			1	4	2
Barclay,	do. do.	do.		1			1	3	
Barclay,	do. do.	do.		1			1		
Porter.	Denniston, Porter & Co.,	do.			1			3	
Bennington,	Blair Iron and Coal Company,	do.			1	1		7	1
Rolling-Mill Mine,	Cambria Iron Company,	do.		1		1		6	
Blast Furnace Mine,	do. do.	do.	1				1	3	2
Conemaugh,	do. do.	do.		1			1	2	
Woodvale,	do. do.	do.		1			1	2	
Sonman,	Dysart & Co.,	Bituminous,		1			1		
Ben's Creek,	S. H. Smith,	Semi-bitum.		1				4	
Mount Hope,	Mount Hope Coal Company,	do.		1			1		
Snow Shoe,	Bellefonte & Snow Shoe R.R.Co.	Bituminons,		1				3	2
Snow Shoe,	do. do. do.	do.		1				4	
Eureka,	Berwind, White & Co.,	Semi-bitum.		1			1	4	
Goss Rnn,	do. do.	do.		1			1	7	
Mapleton,	do. do.	do.		1			1	6	
Franklin.	Kittanning Coal Company,	Bituminous,		1			1	12	3
Ocean,	Whitehead & Co.,	do.		1			1		
Excelsior,	Fisher Bros. & Miller,	do.		1			1	9	
Beaver Rnn,	Barnhurst, Good & Co.,	do.	1				1	6	2
Logan,	do. do.	Semi-bitum.		1			1	7	2
Sterliug, No. 2,	Robert H. Powell,	do.		1				10	1
Webster.	Webster Coal Company, Limited,	do.		1			1		
Moshannon,	Moshannon Coal Company.	Bituminous,		1			1	2	
Morrisdale,	R. B. Wigton,	do.		1			1		
Morrisdale,	do.	do.		1			1		
Decatur,	Decatur Coal Company,	do.		1			1	2	
Laurel Run,	Nuttall, Bacon & Co.,	do.		1			1	3	
Glenwood,	Coulter and Huff,	do.		1			1	4	
Sandy Lick,	Sandy Lick Coal Company,	do.		1			1		
Silver Creek.	D. Eldridge,	do.		1				4	
Cascade.	Kaul & Hall,	do.		1			1	4	
Daguscahonda,	North-Western Mining & Ex. Co.	do.		1			1	7	
Robertsdale,	Rock Hill Iron and Coal Co.,	Semi-bitum.		1			1	2	2
Mooredale,	Reakirt & Bros.,	do.		1				2	
Fisher,	Fisher & Miller,	do.		1			1	6	
McIntyre,	McIutyre Coal Company,	do.		1			1	10	1
McIntyre,	do. do.	do.		1			1	12	
McIutyre,	do. do.	do.		1			1	8	
Clermout,	Buffalo Coal Company,	Bituminons,		1			1	2	
Antrim,	Fall Brook Coal Company,	Semi-bitum.		1			1		
Antrim,	do. do.	do.		1			1		
Fall Brook,	do. do.	do.		1			1	5	
Fall Brook,	do. do.	do.		1			1	21	1
Arnot,	Blossburg Coal Company,	do.		1			1		
Arnot.	do. do.	do.		1			1		
Arnot,	do. do.	do.		1			1		
Morris Run,	Morris Run Coal Mining Co.,	do.		1			1	5	
Morris Run,	do. do.	do.		1			1	3	
Morris Rnn,	do. do.	do.		1			1	12	

respective Collieries in the Third Bituminous Mine District of Pennsyl-of January, 1879.

Number of engines.	Horse power.	Boilers—how many.	Number of miners—men.	Number of miners—boys.	Other persons.	Total number of persons.	Number of mules inside.	Number of mules outside.	Total production in tons.	VENTILATION.							
												1ST WEEK		2D WEEK.		3D WEEK.	
										Number of openings.	Inlet—size of—sq. feet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.
. .	. .	. .	134	37	30	201	17	5	12,000	2							
2	. .	2	220	57	74	351	56	7	19,680	2							
. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	2							
. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	2							
1	25	2	45	15	18	78	11	2	3,023	2	40	320	1,280	260	1,040	205	8,200
3	130	5	115	19	46	180	22	.	7,859	2	140	. . .	18,300	. . .	17,850	. . .	19,300
. .	. .	. .	175	35	65	275	35	. .	13,877	2	90	100	9,000	110	9,900	105	9,720
2	80	2	63	11	35	109	19	1	403	2	88	128	11,264	133	11,704	132	11,616
. .	. .	. .	16	2	1	19	1	1	1,100	2	36	80	2,880	85	3,060	88	3,168
. .	. .	. .	22	3	2	27	2	1	1,600	2	35	100	3,500	110	3,850	115	4,025
. .	. .	.	50	8	10	68	6	1	3,806	2	54	170	8,640	182	8,610	185	8,802
. .	. .	. .	27	3	5	35	2	2	2,708	2							
. .	. .	. .	36	4	6	46	5	1	1,000	2	40	200	10,425	190	9,903	210	10,947
. .	. .	. .	28	3	9	40	4	. .	1,732	2	33	360	11,963	311	11,596	337	10,142
. .	. .	. .	32	5	5	42	3	. .	2,678	2	48	253	12,163	263	12,628	272	13,094
. .	. .	. .	78	24	23	125	15	. .	5,893	2	60	180	12,768	190	13,345	200	13,923
. .	. .	. .	97	22	16	135	9	. .	7,536	2	56	175	11,746	185	12,289	180	12,047
. .	. .	. .	30	9	9	48	2	2	. . .	2	122	290	13,821	260	12,080	270	12,330
1	. .	1	128	30	18	176	14	. .	4,869	2	43	420	18,060	425	18,275	415	17,845
. .	. .	. .	170	15	20	205	11	6	8,311	2	61	880	53,680	800	48,800	840	51,240
. .	. .	. .	160	12	8	180	7	6	1,000	2	64	320	20,480	330	22,120	325	20,800
1	4	2	44	8	5	57	3	1	7,800	2	42	213	8,946	203	8,526	196	3,232
. .	. .	. .	35	5	5	45	3	1	2,988	2	49	220	11,760	225	12,050	220	11,760
. .	. .	. .	130	20	16	166	10	. .	11,362	2	62	240	14,880	200	12,400	260	16,120
. .	. .	. .	50	13	12	65	3		2,210	2	45	270	12,150	280	12,600	250	11,250
. .	. .	. .	31	3	5	39	3	1	1,048	2	56	175	9,800	200	11,200	180	10,080
. .	. .	. .	61	19	31	111	9	5	8,757	2	56	80	6,552	110	7,672	60	5,432
. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	2	48	50	4,656	60	4,704	70	5,136
. .	. .	. .	27	8	2	37	3	. .	3,357	2	36	100	4,884	100	4,824	100	4,824
. .	. .	. .	27	8	6	41	4	2	3,686	2	34	450	16,456	250	9,6.6	270	10,336
. .	. .	. .	30	. . .	3	33	2	.	2,869	2	35	175	6,125	190	6,650	200	7,350
. .	. .	. .	60	4	11	75	4	2	5,000	2	42	250	10,500	220	8,400	225	9,450
. .	. .	. .	50	8	19	7	. . .	7	2,458	2	30	200	6,000	250	6,300	200	6,000
1	. .	1	39	14	8	61	. .	. .	1,700	2	42	130	5,460	130	5,460	130	5,460
1	30	2	115	15	8	138	3	2	7,700	2	30	450	13,500	425	12,750	450	13,500
1	40	2	174	4	30	208	18	4	10,000	2	30	600	18,000	650	19,500	550	16,500
. .	. .	. .	21	2	4	27	2	.	718	2	42	170	7,140	160	6,720	160	6,720
. .	. .	. .	20	3	4	27	1	1	500	2	42	160	6,720	170	7,140	160	6,720
1	6	1	39	3	12	54	6	1	8,727	2	30	310	10,221	293	9,213	303	10,017
. .	. .	. .	98	14	34	146	16	3	. . .	2	48	294	15,7?8	273	14,630	290	15,422
. .	. .	. .	94	19	20	133	6	. .	. . .	2	78	190	17,495	183	16,825	170	15,980
. .	. .	. .	120	. . .	10	130	9	. .	3,445	2	30	410	11,700				
. .	. .	. .	250	28	120	398	25	1	12,227	2							
. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	33	278	9,174	275	9,075	270	8,910
. .	. .	. .	23	9	8	40	6	. .	1,138	2	30	210	6,300	200	6,000	210	6,300
. .	. .	. .	35	10	16	61	10	. .	4,395	2	35	225	7,875	220	7,700	225	7,875
. .	. .	.	240	106	68	414	50	1	. . . .	2	72	375	24,130	305	21,960	251	18,072
. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	2	40	429	17,160	465	18,600	465	18,600
. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	2	65	501	32,565	501	32,565	537	34,905
2	40	2	50	34	25	109	16	.	4,524	2	90	315	28,350	300	27,000	315	28,350
. .	. .	. .	60	40	25	125	15	2	4,413	2	130	330	42,900	330	42,900	320	41,600
1	20	1	100	64	30	194	19	. .	6,432	2	90	340	30,600	330	29,700	350	31,500

A STATEMENT *of the Names, Power, Capacity, and Ventilation in the respective*

NAME OF COLLIERY.	VENTILATION.									
	4TH WEEK.			1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.	
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Average air current per month at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current per minute at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.
Carbon Run,				79	790	69	690	69	690	69	690
Carbon Run,				189	2,268	149	1,788	189	2,268	149	1,488
Carbon Run,											
Carbon Run,											
Barclay,				150	7,200	200	9,600	130	5,240	140	6,720
Barclay,											
Barclay,											
Porter,	350	1,300		200	8,000	120	2,400	220	4,400	240	4,800
Bennington.		20,000	188		6,300		6,000		6,450		6,800
Rolling-Mill Mine,	1 6	10,440	100	96	4,800	100	5,000	109	5,800	120	6,000
Blast-Furnace Mine,	140	12,320	133	65	6,240	67	6,432	70	6,720	65	6,240
Conemaugh,	92	3,3·2	86	40	1,600	45	1,800	40	1,600	48	1,920
Woodvale,	108	3,780	108	60	2,400	65	2,600	70	2,800	75	3,000
Sonman,	190	8,920									
Ben's Creek,											
Mount Hope,	195	10,164	199	155	3,875	150	3,750	165	4,125	155	3,875
Snow Shoe,	369	12,203	360	350	10,512	379	11,392	360	10,803	398	11,967
Snow Shoe,	321	15,422	330	253	10,896	282	12,160	301	12,977	321	13,815
Eureka,	175	12,480		190	5,883	185	5,266	195	5,499	185	5,266
Goss Run,	160	10,931		200	10,769	230	12,720	200	9,945	210	10,357
Mapleton,	250	11,652		400	13,648	270	12,960	360	12,560	360	12,560
Franklin,	430	18,490	422	500	17,500	515	18,025	505	17,675	520	18,200
Ocean,	884	53,689	850	600	30,000	650	32,500	680	34,000	700	35,000
Excelsior,	320	20,480	323	209	15,840	225	16,200	230	16,560	220	15,850
Beaver Run,			267	2 3	6,3?0	203	6,090	196	5,880		
Logan,	230	11,270	227	135	4,567	140	4,907	130	4,410	130	4,410
Sterling, No. 2,	270	16,740	264	120	17,600	100	14,100	210	16,800	130	19,200
Webster,	270	12,150	260	240	10,080	245	10,290	220	9,240	230	9,260
Moshannon,	150	8,400	176	185	7,770	225	9,450	200	8,400	175	7,350
Morrisdale,	60	5,437	77								
Morrisdale,	40	3,734	55								
Decatur,	100	4,824	120	125	5,088	100	4,283	100	4,288	100	4,288
Laurel Run,	300	11,356	371	450	13,552	250	7,952	250	7,952	250	7,950
Glenwood,	200	7,000	193	120	3,120	135	3,510	130	3,480	133	3,510
Sandy Lick,	275	11,550	280								
Silver Creek,	220	6,600	207	100	2,700	150	4,500	720	3,240	170	4,990
Cascade,	130	5,460	130	180	4,320	180	4,320	180	4,320	180	4,320
Daguscahonda,	500	15,000	456	475	14,250	500	14,250	460	13,800	480	14,400
Robertsdale,	550	16,500	546	300	9,000	300	9,000	350	10,500	400	12,000
Mooredale,	180	7,560	167	100	3,360	105	3,528	120	4,032	120	4,032
Fisher,	180	7,560	167	150	4,500	160	4,800	165	4,950	150	4,500
McIntyre,	210	7,311	279	147	5,477	145	5,419	150	5,565	140	5,274
McIntyre,	250	13,560	276	183	6,438	176	6,321	183	6,525	170	6,147
McIntyre,	166	15,679	177	407	15,192	402	15,019	397	15,754	402	15,035
Clermont,	413	12,390								413	12,390
Antrim,				219	6,132	200	5,600	205	5,740	215	6,020
Antrim,	275	9,075	274								
Fall Brook,	195	5,850	204	140	3,600	130	3,120	135	3,240	140	3,360
Fall Brook,	230	8,050	225	135	3,240	135	3,470	130	3,340	140	3,600
Arnot,	330	23,760	302	374	7,976	256	6,144	305	7,320	269	6,456
Arnot,	447	17,880	451	160	5,120	170	5,440	175	5,800	150	4,800
Arnot,	358	23,270	484	895	21,480	769	18,856	626	15,524	465	11,600
Morris Run,	320	28,800	313	130	6,500	130	6,500	120	6,000	140	7,000
Morris Run,	330	42,900	328	120	4,800	120	4,800	130	5,200	140	5,600
Morris Run,	340	3,600	340	140	5,600	150	6,800	140	5,600	150	6,000

Collieries in the Third Bituminous Mine District of Pennsylvania—Continued.

Ventilation.											
		1st week.		2d week.		3d week.		4th week.			
Average velocity per minute for the month.	Outlet—size of—sq. feet.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Average number of feet passing out per month.	Location.
. . .	91	359	32,669	409	37,219	399	36,309	309	28,119	33,579	Carbon Run, Bradf'd county.
. . .	30	279	8,370	299	8,970	219	8,070	229	9,870	8,820	do. do.
. . .	32	519	16,348	419	13,198	509	16,033	429	13,513	14,773	do. do.
. . .	34	239	7,887	149	6,017	189	6,237	129	4,257	6,099	do. do.
155	64	700	44,800	850	54,400	800	51,200	650	41,600	48,000	Barclay, Bradford county.
. . .	36	380	13,680	450	16,200	370	13,320	370	13,320	14,130	do. do.
	36	300	10,800	230	8,280	250	9,000	500	18,000	11,320	do. do.
. .	54	280	14,400	260	13,300	210	10,500	305	15,250	. .	Porter, Blair county.
. . .	352	. .	18,000		16,800	. .	18,200	. . .	18,700	17,925	Bennington, Blair county.
106	38	350	13,300	365	13,870	355	13,490	365	13,870	13,682	Johnstown, Cambria county.
66	61	336	21,716	360	21,960	363	22,448	362	22,082	22,070	do. do.
43	31	115	3,165	125	3,875	118	3,658	150	4,650	3,937	do. do.
67	30	125	3,750	130	3,900	128	3,840	142	4,260	3,938	do. do.
. . .	28	240	7,810	260	8,001	270	9,102	301	9,002	. . . .	Sonman, do.
. . .	.	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . . .	Ben's Creek, do.
156	40	225	9,450	240	10,080	255	9,810	220	9,180	9,895	Mt. Hope, Cameron county.
372	34	399	13,572	418	14,222	398	13,564	437	14,881	14,060	Snow Shoe, Centre county.
291	41	282	11,582	301	12,377	311	12,775	340	13,968	12,676	do. do.
. .	26	260	7,597	270	7,849	275	7,975	260	7,997	. .	Houtzdale, Clearfield county.
. . .	36	220	12,614	330	12,963	240	13,312	320	12,614	. .	do. do.
392	48	320	12,384	200	11,232	200	11,232	190	10,752	11,400	Mapleton, do.
510	63	700	44,100	715	45,045	720	45,360	710	44,730	44,889	Houtzdale, do.
657	45	700	31,500	650	29,250	680	30,600	700	3,150	30,712	Goss Run, do.
223	36	660	23,760	665	23,940	670	24,120	650	23,400	23,850	do. do.
609	. . .	513	16,416	503	16,096	496	15,876			15,032	Beaver Run, do.
133	30	360	11,860	380	12,450	360	11,850	350	11,550	11,900	Laurel Run, do.
190	80	200	16,000	210	16,800	200	16,000	240	19,200	17,000	Goss Run, do.
233	30	580	17,400	580	17,400	560	16,800	570	17,100	17,175	do. do.
196	44	200	8,800	225	9,900	200	8,800	185	8,140	8,910	Sobieski. do.
. . .	32	130	5,181	160	6,468	110	4,851	120	5,080	5,420	Morrisdale, do.
. . .	24	70	1,944	90	2,268	100	2,466	70	1,944	2,155	do. do.
106	25	120	3,850	100	3,350	100	3,350	100	3,350	3,475	Decatur, do.
300	28	420	12,712	200	6,562	250	7,552	250	7,952	8,792	Laurel Run, do.
130	60	340	20,400	350	21,000	320	19,200	330	19,800	20,100	Glenwood, do.
42	.	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	Du Bois, do.
135	20	210	2,520	230	2,760	200	2,400	240	2,880	2,680	St. Mary's, Elk county.
180	24	220	5,280	220	5,280	220	5,280	220	5,280	5,280	do. do.
475	30	500	15,000	475	14,250	480	14,400	500	15,000	14,690	Daguscahonda, Elk county.
365	25	550	13,750	600	15,000	500	12,500	500	15,000	13,437	Robertsdale, Huntingdon co.
111	42	160	6,720	160	6,720	150	6,300	150	6,300	6,510	Moredale, do.
156	36	160	5,760	170	6,120	160	5,760	165	5,940	5,860	do. do.
145	23	223	10,765	207	10,113	217	10,520	195	9,624	10,255	McIntyre, Lycoming county.
178	25	333	17,424	323	16,948	317	16,679	288	15,529	16,645	do. do.
401	42	287	17,829	280	17,449	277	17,286	265	16,074	17,159	do. do.
. .	40	277	11,080			. .		285	11,400	11,750	Clermont, McKean county.
209	35	530	18,550	550	19,250	520	18,200	580	20,300	19,075	Antrim, Tioga county.
. .	27	375	10,071	375	10,125	350	9,450	353	9,531	9,794	do. do.
135	30	220	6,600	215	6,450	225	6,750	225	6,950	6,637	Fall Brook, do.
136	60	300	18,000	219	17,400	295	17,700	305	18,300	17,850	do. do.
301	42	183	45,886	827	34,734	751	31,532	841	35,322	36,271	Arnot, do.
163	40	420	16,800	430	17,200	447	17,880	411	16,440	17,080	do. do.
688	70	509	35,630	483	33,710	473	33,110	330	23,100	31,387	do. do.
130	72	630	45,360	620	44,640	630	45,360	650	46,800	45,220	Morris Run, do.
128	66	660	43,560	650	42,900	650	42,900	660	43,560	42,860	do. do.
145	52	680	35,360	660	34,320	700	34,900	680	35,360	35,870	do. do.

A STATEMENT *of the Names, Power, Capacity, and Ventilation in the* *vania, for the Month*

NAME OF COLLIERY.	NAME OF OPERATOR.	Character of coal—bituminous or semi-bituminous.	Slope.	Drift.	Shaft.	Fan.	Furnace.	Number of headings.	Pumps—how many.
Barclay,	Towanda Coal Company,	Semi-bitum.		1			1	4	2
Barclay,	do. do.	do.		1			1	3	
Barclay,	do. do.	do.		1			1		
Carbon Run,	Schraeder Coal Company,	do.		1			1		
Carbon Run,	do. do.	do.		1			1		
Carbon Run,	do. do.	do.		1			1		
Lloyd's,	Bell's Gap Railroad Company,	do.		1		1			
Porter,	Denniston, Porter & Co.,	do.			1		1	3	
Bennington,	Blair Iron and Coal Company,	do.			1	1		8	2
Rolling-Mill,	Cambria Iron Company,	do.		1		1		6	
Blast Furnace,	do. do.	do.	1				1	3	2
Conemaugh,	do. do.	do.		1			1	2	
Woodvale,	do. do.	do.		1			1	1	
Sonman,	Dysart & Co.,	Bituminous,		1			1		
Benn's Creek,	S. H Smith,	Semi-bitum.		1				4	
Mount Hope,	C. Elias & Co.,	Bituminous,		1			1		
Goss Run,	Berwind, White & Co.,	Semi-bitum.		1			1		
Enreka,	do. do.	do.		1			1		
Mapleton,	do. do.	do.		1			1		
Logan,	Barnhurst, Good & Co.,	do.		1			1	7	2
Excelsior,	Fisher Brothers & Miller,	Bituminous,		1			1	10	
Franklin,	Kittanning Coal Company,	do.		1			1	13	3
Sterling, No. 2,	Robert H. Powell & Co.,	Semi-bitum.		1			1	7	
Moshannon,	Moshannon Coal Company,	Bituminous,		1			1	2	
Penn,	Reakirt, Brother & Co.,	do.		1			1	2	
Laurel Run,	Nuttall, Bacon & Co.,	do.		1			1	3	
Decatur,	Decatur Coal Company,	do.		1			1	2	
Morrisdale,	R. B. Wigton,	Semi-bitum.		1			1		
Morrisdale,	do.	do.		1			1		
Glenwood,	Coulter & Huff,	Bituminous,		1			1	3	
Sandy Lick,	Sandy Lick Coal Company,	do.		1			1	4	1
Cascade,	Kaul & Hall,	do.		1			1	4	
Silver Creek,	D. Eldridge.	do.		1			1	3	
Daguscahonda,	N W. Mining & Exchange Co.,	do.		1			1	5	
Robertsdale,	Rockhill Iron and Coal Company	Semi-bitum.		1			1	3	2
Mooredale,	Reakirt, Brother & Co.,	do.		1				2	
McIntyre,	McIntyre Coal Company,	do.		1			1	10	1
McIntyre,	do. do.	do.		1			1	12	
McIntyre,	do. do.	do.		1			1	8	
Clermont,	Buffalo Coal Company,	Bituminous,		1			1		
Antrim,	Fall Brook Coal Company,	Semi-bitum.		1			1		
Antrim,	do. do.	do.		1			1		
Fall Brook,	do. do.	do.		1			1		
Fall Brook,	do. do.	do.		1			1		1
Arnot,	Blossburg Coal Company,	do.		1			1		
Arnot,	do. do.	do.		1			1		
Arnot,	do. do.	do.		1			1		
Morris Run,	Morris Run Coal Mining Co.,	do.		1			1	5	
Morris Run,	do. do.	do.		1			1	8	
Morris Run,	do. do.	do.		1			1	12	

respective Collieries in the Third Bituminous Mine District of Pennsyl-of February, 1879.

Number of engines.	Horse power.	Boilers—how many.	Number of miners—men.	Number of miners—boys.	Other persons.	Total number of persons.	Number of mules inside	Number of mules outside.	Total production in tons.	VENTILATION.							
												1ST WEEK.		2D WEEK.		3D WEEK.	
										Number of openings.	Inlet—size of—sq. feet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.
2		2	224	57	74	355	59	7	19,625	2							
										2							
										2							
			136	38	30	204	17	6	16,000	2	91	409	37,219	379	34,489	349	31,759
1		2	100	3	15	118	20			2	35	500	16,500	460	15,480	500	16,500
1	25	2	56	13	15	84	12	2	2,602	2	40	300	13,200	315	14,870	250	11,000
3		5	116	23	18	157	21		7,524	4	140		19,600		18,200		19,400
			173	35	68	276	35		11,555	6	90	78	7,020	82	7,380	112	10,080
2	80	2	60	11	30	101	18	1	2,983	3	88	135	11,880	129	11,352	130	11,440
			17	4	1	22	1	1	915	2	36	90	3,240	92	3,312	92	3,312
			20	2	2	24	2	1	1,512	2	35	115	4,025	112	3,920	113	3,955
			50	8	10	68	6	1	3,601	2	54	178	8,610	185	8,701	183	8,710
			28	4	5	37	2	2	2,504	2							
			31	7	6	44	5		800	2	41	200	10,425	190	9,933	210	10,947
			103	19	16	138	9		6,108	2	56	175	11,746	165	11,202	169	10,931
			71	22	21	114			1,232	2							
			34	8	10	52	3	2		2	42	300	13,440	280	12,750	310	13,290
			37	5	6	48	3	1	2,015	2	49	115	6,125	120	6,370	125	6,615
			160	15	20	195	8	7	10,000	2	64	340	21,760	350	22,400	345	22,890
			170	50	19	239	14		13,277	2	43	430	18,490	450	19,350	461	19,780
1		1	150	20	12	182	10		11,598	2	100	200	20,000	210	21,000	180	18,000
			32	6	4	42	4	1	2,848	2	56	180	10,080	150	8,400	200	11,200
			48	4	5	57	5	2	2,927	2	42	108	4,536	130	5,460	115	4,830
			27	8	6	41	4	2	4,060	2	34	250	9,656	250	9,565	150	6,256
			27	8	2	37	3		2,703	2	36	100	4,824	100	4,821	100	4,824
			65	50	35	150	9	4	8,315	2	48	90	6,096	110	7,056	90	6,096
											48	110	7,056	130	7,536	140	8,448
			30		3	33	2		2,200	3	30	175	5,250	185	5,850	160	4,800
1	8	1	50	4	9	63	5	4	4,000	4	42	250	10,500	225	10,000	200	8,400
			35	10	8	53			1,668	2	42	163	6,746	163	6,746	163	6,746
			55	9	18	82		6	2,300	2	30	170	5,100	180	5,400	200	6,000
1	30	2	130	15	9	154	3	2	7,000	2	30	400	18,400	410	18,860	410	18,860
1	20	2	165	5	8	178	16	7	6,295	2	30	400	12,000	375	11,250	500	15,000
			23	2	4	29	2		226	2	42	220	9,240	210	8,820	230	9,660
1	6	1	37	2	13	52	6	1	15,301	2	30	294	9,955	317	10,424	320	10,512
			95	16	36	147	16	3		2	48	287	15,282	267	14,351	279	14,910
			100	21	23	144	7			2	78	178	16,587	168	15,826	192	17,646
			115		12	127	9		4,000	2	30	257	12,450	208	12,840		
			255	30	121	406	30		16,456	2							
										2	33	280	9,240	275	9,075	275	9,075
			23	9	8	40	6		981	2	30	215	6,450	220	6,600	210	6,300
			37	10	16	63	12		4,667	2	35	300	10,500	310	7,850	300	10,500
			246	107	70	423	52	1		2	72	222	15,984	268	19,296	345	24,840
										2	40	465	18,600	465	18,600	465	18,600
										2	65	509	33,085	465	30,235	482	31,330
2	40	2	52	34	25	111	16		6,500	2	90	320	28,800	350	31,500	330	29,700
			60	40	25	125	15	2	6,108	2	130	340	44,200	350	45,500	330	42,900
1	20	1	100	64	30	194	19		8,445	2	90	350	31,500	330	29,700	350	31,500

A STATEMENT *of the Names, Power, Capacity, and Ventilation in the respective*

NAME OF COLLIERY.	VENTILATION.									
	4TH WEEK.			1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.	
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Average air current per month at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current per minute at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.
Barclay,	. . .	. . . .	. . .	200	9,000	200	9,000	230	11,040	380	18,240
Barclay,	. . .	. . . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Barclay,	. .	. . . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Carbon Run,	339	29,019	389	79	790	79	790	59	590	69	690
Carbon Run,	. . .	. . . .	. . .	149	1,788	169	2,028	159	1,908	149	1,788
Carbon Run,	. . .	. . . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Lloyds'	480	15,780	. . .	300	12,000	280	11,600	300	12,000	220	10,780
Porter,	290	12,840	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Bennington,	. . .	19,100	. .	. . .	6,800	. . . .	6,300	. . . .	6,600	. .	6,100
Rolling-Mill,	110	9,900	96	90	4,500	98	4,800	108	5,400	109	5,450
Blast Furnace,	135	11,880	132	68	6,528	65	6,240	68	6,528	70	6,720
Conemaugh,	90	3,240	91	41	1,640	46	1,840	45	1,800	40	1,600
Woodvale,	112	3,920	113	62	2,480	66	2,640	72	2,880	68	2,720
Sonman,	195	9,802	186	. . . .	. . . .	. . .	. . . .	. . . .	. . . .	. . . .	. . . .
Benn's Creek,	. .	. . . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Mount Hope,	195	10,164	199	155	3,875	150	3,750	165	4,125	155	3,875
Goss Run,	170	11,472	. . .	200	9,945	190	9,532	185	9,326	195	9,738
Eureka,	. . .	. . . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Mapleton,	300	13,200	297	400	13,568	360	15,560	410	14,220	370	12,800
Logan,	120	6,370	120	90	2,991	90	2,991	90	2,991	90	2,991
Excelsior,	347	22,208	345	240	17,280	245	17,240	249	17,928	245	17,240
Franklin,	425	18,275	441	550	18,490	535	18,240	515	18,025	510	17,850
Sterling, No. 2,	195	19,500	169	180	14,100	290	15,000	330	17,400	330	18,100
Moshannon,	175	9,800	175	200	8,400	175	7,550	250	10,500	225	9,450
Penn,	138	5,796	120	420	11,320	462	11,000	350	11,330	465	11,460
Laurel Run,	200	7,956	212	200	6,552	300	9,352	180	5,152	240	7,952
Decatur,	100	4,824	100	100	4,288	100	4,288	100	4,288	100	4,288
Morrisdale,	80	5,616	92	. .	. . . .	. . .	. . .	. . .	. . .	. . .	. . .
Morrisdale,	90	6,096	126	. . .	. . . .	. . .	. . .	. . .	. . .	. . .	. . .
Glenwood,	140	5,700	177	90	2,160	95	2,280	120	2,880	109	2,600
Sandy Lick,	225	9,450	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Cascade,	163	6,746	163	140	4,480	140	4,480	140	4,480	140	4,480
Silver Creek,	160	4,800	177	170	4,590	150	4,050	170	4,590	130	3,510
Daguscahonda,	400	18,400	405	400	18,400	410	18,860	410	18,860	400	18,400
Robertsdale,	450	13,500	440	400	12,000	300	9,000	400	12,000	400	12,000
Moorcdale,	240	1,008	225	140	4,704	120	4,032	150	5,040	160	5,375
McIntyre,	300	9,930	307	146	5,382	150	5,565	154	5,681	145	5,519
McIntyre,	273	14,630	275	184	6,552	165	6,007	176	6,321	180	6,438
McIntyre,	165	15,678	175	395	14,820	399	14,944	413	15,383	388	14,602
Clermont,	. . .	. . . .	220	450	.	500	. . .	. . .	. . . .	. . . .	. . . .
Antrim,	. . .	. . . .	. . .	. .	. . .	. . .	. . .	. . .	. . . .	. . . .	. . . .
Antrim,	275	9,075	276	219	6,132	205	5,740	215	6,020	220	6,160
Fall Brook,	215	6,450	215	140	3,360	145	3,480	135	3,240	145	3,480
Fall Brook,	290	10,150	300	150	3,900	145	3,770	155	3,410	140	3,640
Arnot,	273	19,656	277	180	5,760	190	6,080	200	6,400	214	6,848
Arnot,	483	19,320	469	170	5,780	160	5,440	150	5,100	179	6,086
Arnot,	483	31,395	484	769	18,456	572	13,728	751	18,024	698	16,752
Morris Run,	320	28,800	330	130	6,500	120	6,000	140	7,000	120	6,000
Morris Run,	340	44,200	340	120	4,800	130	5,200	140	5,600	120	4,800
Morris Run,	340	30,600	343	150	6,000	140	5,600	140	5,600	140	5,600

Collieries in the Third Bituminous Mine District of Pennsylvania—Continued.

VENTILATION.											
		1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.			
Average velocity per minute per month.	Outlet—size of—sq. ft.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Average number of feet passing out per month.	LOCATION.
252	64	750	48,000	650	41,600	700	44,800	820	52,480	46,720	Barclay, Bradford county.
. .	36	220	7,920	300	10,800	320	11,520	300	10,800	10,260	do. do.
. . .	36	320	11,520	360	12,960	370	13,320	360	12,960	12,690	do. do.
67	30	409	8,370	379	5,390	319	9,570	319	8,370	8,820	Carbon Run, do.
156	31	479	15,088	299	13,573	379	11,938	279	12,883	13,105	do. do.
. . .	33	139	6,950	429	6,950	119	5,950	139	6,950	6,700	do. do.
. . .	38	500	16,500	490	16,000	420	15,280	500	16,500	. . . .	Lloyd's, Blair county.
. . .	40	280	10,020	300	12,000	230	9,200	260	10,400	. . . .	Porterville, do.
. . .	352	. . .	19,000	. . .	18,000	. . .	18,900	. .	18,800	. . . .	Bennington, do.
101	38	354	13,452	358	13,604	362	13,756	380	13,680	22,036	Johnstown, Cambria county.
67	61	362	22,082	358	21,838	360	21,960	365	22,265	13,537	do. do.
43	31	116	3,596	119	3,689	120	3,720	128	3,968	2,036	do. do.
67	30	130	3,900	132	3,960	128	3,840	125	3,750	3,746	do. do.
. . .	58	245	7,806	240	8,010	278	9,110	308	9,110	8,680	Souman, do.
. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. .	. . . .	. . . .	Benn's Creek, do.
156	41	225	9,450	240	10,080	235	9,870	. .	. . . .	9,895	Mt. Hope, Cameron county.
. . .	360	295	11,741	300	11,916	290	11,566	310	12,265	. . . .	Goss Run, Clearfield county.
. .	. . .	. . .	. . .	. .	. .	. .	. .	. .	. . .	. .	Houtzdale, do.
398	48	240	13,056	230	12,384	250	13,688	240	13,056	13,546	Mapleton, do.
90	30	340	11,100	344	11,100	345	11,250	340	11,100	11,137	Osceola Mills, do.
234	36	640	23,040	645	23,220	650	23,400	640	23,040	23,425	Goss Run, do.
521	63	740	46,620	760	47,880	750	47,250	730	45,990	46,995	Houtzdale, do.
326	120	200	24,000	180	21,600	200	24,000	160	19,200	22,000	Sterling, do.
200	44	200	8,800	200	8,800	255	11,000	225	9,900	10,240	Sobieski, do.
420	15	700	10,050	760	11,400	720	10,800	780	10,800	10,960	Houtzdale, do.
222	28	200	6,552	320	10,752	150	5,152	240	7,952	7,652	Laurel Run, do.
100	25	100	3,350	100	3,350	100	3,359	100	3,350	3,350	Decatur, do.
. . .	30	100	4,531	120	5,081	100	4,721	90	4,284	4,361	Morrisdale, do.
. . .	20	140	3,540	150	3,720	100	2,740	110	2,940	3,235	do. do.
130	30	200	6,000	225	6,750	230	6,900	230	6,900	6,637	Glenwood, do.
. . .	42	. . .	. . . .	.	. . .	. . .	.	. . .	. . .	.	Du Bois, do.
140	24	280	6,720	280	6,720	280	6,720	280	6,720	6,720	St. Mary's, Elk county.
155	12	250	3,000	230	2,760	210	2,520	230	2,760	2,830	do. do.
405	30	614	18,420	628	18,840	628	18,440	614	18,420	18,630	Daguscahonda, Elk county.
400	30	400	12,000	350	10,500	400	12,000	350	10,500	11,250	Robertsdale, Huntingdon co.
142	42	200	8,000	220	9,240	225	9,450	210	8,820	8,877	Mooredale, do.
148	25	213	10,357	217	10,502	222	10,724	218	10,477	10,519	McIntyre, Lycoming county.
176	25	303	16,027	300	15,888	327	17,145	290	15,422	16,120	do. do.
398	42	273	17,069	268	16,798	287	17,829	270	16,906	17,150	do. do.
. . .	40	305	12,200	325	13,000	. . .	. . .	. . .	. . .	12,600	Clermont, McKean county.
. . .	35	530	18,550	520	18,200	540	18,900	580	20,030	18,987	Antrim, Tioga county.
214	27	375	10,125	373	10,071	393	10,530	395	10,665	10,447	do. do.
141	30	235	7,050	240	7,200	230	6,900	235	7,050	7,050	Fall Brook, do.
142	40	315	18,300	310	18,600	300	18,000	305	18,300	18,300	do. do.
196	42	757	31,542	733	30,786	903	38,926	903	38,926	35,047	Arnot, do.
164	40	429	17,160	404	16,160	393	13,720	450	18,000	16,260	do. do.
697	70	491	34,370	465	32,160	465	32,550	465	32,950	35,005	do. do.
128	72	640	46,080	700	50,400	680	48,960	650	46,800	50,120	Morris Run, do.
128	66	680	44,880	700	46,200	660	43,560	680	44,880	45,670	do. do.
143	52	700	36,400	670	34,840	700	36,400	680	35,360	35,220	do. do.

A STATEMENT *of the Names, Power, Capacity, and Ventilation in the* *vania, for the Month*

NAME OF COLLIERY.	NAME OF OPERATOR.	Character of coal—bituminous or semi-bituminous.	Slope.	Drift.	Shaft.	Fan.	Furnace.	Number of headings.	Pumps—how many.
Barclay,	Towanda Coal Company,	Semi-bitum.	..	1	..	..	1	2	2
Barclay,	do. do.	do.	..	1	..	..	1	2	..
Barclay,	do. do.	do.	..	1	..	..	1	..	..
Carbon Run,	Shraeder Coal Company,	do.	..	1	..	..	1	..	..
Carbon Run,	do. do.	do.	..	1	..	..	1		
Carbon Run,	do. do.	do.	..	1	..	..	1		
Ben's Creek,	S. H. Smith,	do.	..	1	..	..	..	4	..
Porter,	Denniston, Porter & Co.,	do.	..	..	1	..	1	3	..
Bell's Gap.	Bell's Gap Railroad Company,	do.	..	1	..	1	..	4	..
Bennington Shaft,	Blair Iron and Coal Company,	do.	..	..	1	1	..	6	2
Rolling-Mill,	Cambria Iron Company,	do.	..	1	..	1	..	6	..
Blast Furnace,	do. do.	do.	1	..	..	..	1	2	2
Conemaugh,	do. do.	do.	..	1	..	..	1	2	..
Woodvale,	do. do.	do.	..	1	..	..	1	2	..
Sonman,	Dysart & Co.,	do.	..	1	..		1	..	
Snow Shoe,	Bellefonte & Snow Shoe R. R. Co.	do.	..	1	..	..	..	..	2
Snow Shoe,	do. do.	do.	..	1	..	..	..	..	..
Eureka,	Berwind, White & Co.,	do.	..	1	..	..	1	5	..
Goss Run,	do. do.	do.	..	1	..	..	1	..	..
Mapleton,	do. do.	do.	..	1	..	..	1	..	..
Franklin,	Kittanning Coal Company,	Bituminous,	..	1	..	..	1	12	3
Beaver Run,	H. R. Barnhurst,	do.	1	..	..	..	1	2	2
Sterling, No. 1,	Robert Hare Powell,	Semi-bitum.	..	1	..	..	1	16	..
Sterling, No. 2,	do.	do.	..	1	..	..	1	7	..
Penn,	Reakirt Brother & Co.,	Bituminous,	..	1	..	..	1	2	..
Ocean,	Whitehead & Co.,	do.	..	1	..	..	1	..	..
Webster,	Webster Coal Company, Limited	Semi-bitum.	..	1	..	..	1	..	..
Excelsior,	Fisher Brother & Miller,	Bituminous,	..	1	..	..	1	10	..
Moshannon,	Moshannon Coal Company,	do.	..	1	..	..	1	2	..
Morrisdale,	R. B. Wigton,	do.	..	1	..	..	1	..	..
Glenwood,	Coulter & Huff,	do.	..	1	..	..	1	4	..
Decatur,	Decatur Coal Company,	do.	..	1	..	..	1	2	..
Laurel Run,	Nuttall, Bacon & Co.,	do.	..	1	..	..	1	2	..
Rochester,	Bell, Lewis & Yates,	do.	..	1	..	..	1	6	..
Sandy Lick,	Sandy Lick Coal Company,	do.	..	1	..	..	1	4	1
St. Mary's,	St. Mary's Coal Company,	do.	..	1	..	.	1	..	..
Caseade,	Kaull & Hall,	do.	..	1	..	..	1	4	..
Daguscahonda,	North-western Mining & Ex. Co.	do.	..	1	..	..	1	5	..
Mooredale,	Reakirt Brother & Co.,	Semi-bitum.	..	1	..	..	..	3	..
Robertsdale,	Rockhill Iron and Coal Company	do.	..	1	..	..	1	4	..
McIntyre,	McIntyre Coal Company,	do.	..	1	..	..	1	10	..
McIntyre,	do. do.	do.	..	1	..	..	1	12	..
McIntyre,	do. do.	do.	..	1	..	..	1	8	..
Clermont,	Buffalo Coal Company,	Bituminous,	..	1	..	..	1	..	..
Antrim,	Fall Brook Coal Company,	Semi-bitum.	..	1	..	..	1	..	..
Antrim,	do. do.	do.	..	1	..	..	1	..	..
Fall Brook,	do. do.	do.	..	1	..	..	1	..	1
Fall Brook,	do. do.	do.	..	1	..	..	1	21	..
Arnot,	Blossburg Coal Company,	do.	..	1	..	..	1	..	..
Arnot,	do. do.	do.	..	1	..	..	1	..	..
Arnot,	do. do.	do.	..	1	..	..	1	.	..
Morris Run,	Morris Run Coal Mining Co.,	do.	..	1	..	..	1	5	..
Morris Run,	do. do.	do.	..	1	..	..	1	8	..
Morris Run,	do. do.	do.	..	1	..	..	1	12	..

respective Collieries in the Third Bituminous Mine District of Pennsylvania, of March, 1879.

Number of engines.	Horse power.	Boilers—how many.	Number of miners—men.	Number of miners—boys.	Other persons.	Total number of persons.	Number of mules inside.	Number of mules outside.	Total production in tons.	VENTILATION. Number of openings.	Inlet—size of—feet.	1st week. Velocity of air current per minute at inlet.	1st week. Number of cubic feet passing in per minute at inlet.	2d week. Velocity of air current per minute at inlet.	2d week. Number of cubic feet passing in per minute at inlet.	3d week. Velocity of air current per minute at inlet.	3d week. Number of cubic feet passing in per minute at inlet.
2	. .	2	223	58	74	355	60	7	22,596	2							
. .	. .	. .	. . .	. . .	. . .	. .	. .	. .	. . . .	2							
. .	. .	. .	. .	. .	. .	. .	. .	. .	. . . .	2							
. .	. .	. .	135	38	30	204	17	7	14,000	. . .	91	319	22,029	239	23,569	299	27,109
. .	. .	. .	26	3	2	31	2	2	2,068	2							
1	20	2	50	10	22	82	12	3	3 598	2	40	315	14,800	300	. .	320	
1		2	95	5	14	114	18	. .	7,899	2	33	410	13,530	490	16,670	350	11,500
3	120	7	116	21	46	183	21	. .	6,952	2	48	500	24,000	428	20,571		
. .	.		176	38	65	279	38	. .	12,800	2	90	90	1,800	80	7,200	100	9,000
2	80	2	50	12	25	87	12	. .	3,044	2	88	125	11,000	130	11,440	126	11,088
. .	. .	. .	17	3	1	21	1	1	954	2	36	92	3,312	85	3,060	88	3,168
. .	. .	. .	24	3	2	29	2	1	1,717	2	35	120	4,200	116	4,060	115	4,025
. .	. .	. .	50	8	10	68	6	1	3,800	2	51	175	8,702	188	8,695	186	8,720
. .	. .	. .	32	3	9	44	4	. .	1.660	2	33	340	11,243	351	11,596	369	12,843
. .	. .	. .	28	5	5	38	4	. .	2.597	2	48	243	11,697	353	12,163	263	12,628
. .	. .	. .	60	14	21	95	16	. .	2,896	2	59	190	13,345	2 0	14,500		
. .	. .	. .	77	16	14	107	10	. .	3,792	2	63	180	12,017	185	12,289	190	12,560
. .	. .	.	34	6	10	50	3	2	. .	2	42	140	7,350	150	7,770	150	7,770
1	. .	1	168	55	12	235	16	.	10,641	2	43	500	21,500	540	23,220	525	22,575
1	40	2	22	3	4	29	2	1	900	2							
1	12	1	60	. . .	6	66	4		2,300	2	36						
. .	. .	. .	120	11	17	148	11	. .	12,500	2	60	250	15,000	240	14,400	200	12,000
. .	. .	. .	45	5	6	56	4	2	2,722	2	48	100	4,800	85	4,080	91	4,368
. .	. .	. .	190	10	20	220	15	6	15,426	2	61	350	21,350	340	20,740	320	19,520
. .	. .	. .	64	8	10	82	8	5	. . . .	2	46	250	11,250	210	10,800	270	12,150
. .	. .	. .	160	15	7	182	8	3	13,000	2	64	230	14,720	240	15,360	235	15,040
. .	. .	. .	31	5	3	42	4	1	3,125	2	56	190	10,640	180	10,080	200	11,200
. .	. .	. .	65	19	29	113	8	3	8,942	2	48	110	2,056	120	7,536	80	5,616
. .	. .	. .	30		2	32	2	.	1,700	2	30	175	5,250	185	5,550	160	4,800
. .	. .	. .	27	8	2	37	3		2,500	2	36	50	2,100	66	2,500	100	3,350
. .	. .	. .	27	8	6	41	4	2	5,100	2	34	106	6,596	100	4,556	184	6,256
. .	. .	. .	129	1	16	146	9	1	11,386	2	56	400	22,400	350	18,600	400	22,400
1	6	1	40	2	8	50	4	3	4,000	2	42	200	8,400	200	8,400	225	9,450
. .	. .	. .	60	20	10	90	2	4	6,400	2	48	216	11,952	213	11,808	216	11,952
1	12	1	38	14	11	63	. . .		2,000	2	42	130	5,460	130	5,460	130	5,460
1	30	2	130	15	9	154	3	2	7,400	2	30	400	18,400	400	18,400	410	9,320
. .	. .	. .	24	2	4	30	2		715	2	42	180	7.560	170	7,140	195	8,190
. .	. .	. .	174	30	10	214	20	1	9,266	2	30	400	12,000	375	11,250	450	13,500
. .	. .	. .	40	2	13	55	6	1	17,326	2	30	282	9,406	278	9,286	278	9,059
. .	. .	. .	100	16	36	152	18	3	. . . .	2	48	253	13,699	277	14.769	277	14,824
. .	. .	. .	103	21	23	147	8		. . . .	2	78	163	15,452	160	15,525	160	15,198
. .	. .	. .	91	6	7	104	7		7,289	2	30	256	12,120	168	12,150	360	13,609
. .	. .	. .	258	30	121	409	35	. .	17,614	2							
. .	. .	. .	. . .	. . .	. . .	. . .	. .	. .	. . . .	. .	33	270	8,910	280	9,240	275	9,075
. .	. .	. .	30	7	11	48	7	. .	2,796	2	30	195	5,850	185	5,550	195	5,900
. .	. .	. .	35	10	16	61	8	. .	4,038	2	35	250	8,750	280	9,100	255	8,925
. .	. .	. .	. .	. . .	. . .	. .	. .	. .	. . . .	2	72	275	19,800	249	17,928	268	19,296
. .	. .	. .	244	107	70	421	54	1	. . . .	2	40	465	18,600	411	16,440	358	14,320
. .	. .	. .	. .	. . .	. . .	. .	. .	. .	. . . .	2	65	465	3 ,250	501	32,565	473	30,775
2	40	2	52	34	25	111	16	. .	6,600	2	90	340	30,600	320	28,800	320	30,600
. .	. .	. .	60	40	25	125	15	2	6,480	2	130	340	44.200	320	41,600	340	44,200
1	20	1	100	64	30	194	19	. .	9,349	2	90	330	29,700	350	31.500	340	36,000

A STATEMENT *of the Names, Power, Capacity, and Ventilation in the respective*

NAME OF COLLIERY.	VENTILATION.											
	4TH WEEK.			1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.	
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Average air current per month at inlet.	Velocity of air current at or near face of heading	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current per minute at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.
Barclay,				200	9,600	200	9,600	210	10,480	200	9,600
Barclay,											
Barclay,											
Carbon Run,	209	19,019	263	79	790	59	590	59	590	89	890
Carbon Run,				149	1,788	149	1,788	189	2,268	179	2,140
Carbon Run,											
Ben's Creek,	295	8,640									
Porter,	276										
Bell's Gap,	500	16,500	437	280	11,200	220	8,800	290	11,600	300	12,000
Bennington Shaft,	545	26,181	491	159	6,600	120	5,280			141	6,324
Rolling-Mill,	95	8,550	91	95	4,750	92	4,600	98	4,900	100	5,000
Blast Furnace,	130	11,440	127	60	5,760	62	5,952	65	6,240	70	6,720
Conemaugh,	95	3,420	90	40	1,600	43	1,720	45	1,800	50	2,000
Woodvale,	115	4,165	117	68	2,720	63	2,520	70	2,800	75	3,000
Sonman,	198	9,720	82								
Snow Shoe,	379	12,573	362	350	10,512	360	10,803	389	11,676	379	11,380
Snow Shoe,	272	13,094	281	253	10,896	292	12,864	320	13,764	243	10,479
Eureka,			196	240	6,547	245	6,663				
Goss Run,	200	13,104	200	210	10,357	220	11,181	240	12,003	260	12,856
Mapleton,	160	8,190	152	340	12,104	350	12,240	400	13,496	400	13,568
Franklin,	550	23,650	528	500	17,500	509	19,000	565	19,775	575	20,125
Beaver Run,	203	8,526	203							193	8,106
Sterling, No. 1,	300	10,800	300							200	8,000
Sterling, No. 2,	240	14,400	236	220	11,700	200	10,800	230	12,200	270	14,800
Penn,	70	3,360	100	60	2,100	50	1,995	62	2,170	54	1,890
Ocean,	320	19,520	332	400		410		450		420	
Webster,	240	10,800	225	210	8,820	200	8,400	220	9,240	210	8,820
Excelsior,	230	14,720	233	231	18,711	235	19,035	230	18,630	231	18,711
Moshannon,	200	11,200	197	175	7,350	175	7,350	190	7,980	180	7,560
Morrisdale,	90	6,096	100								
Glenwood,	190	5,700	177	90	2,160	950	2,280	120	2,880	110	2,640
Decatur,	40	1,850	64	84	3,776	50	3,688	66	3,200	40	2,688
Laurel Run,	204	6,936	162	150	5,152	120	4,312	49	3,680	200	6,552
Rochester,	350	18,600	390	300	12,600	300	12,600	300	12,600	300	12,600
Sandy Lick,	250	1,050									
St. Mary's,	213	11,808	228	240	11,466	230	11,406	240	11,466	233	11,214
Cascade,	130	5,460	130	180	4,320	180	4,320	180	4,320	180	4,320
Daguscahonda,	400	18,450	402	400	18,400	400	18,400	410	19,320	410	18,450
Mooredale,	210	8,820	188	120	4,032	100	3,360	130	4,368	145	4,872
Robertsdale,	450	13,500	419	425	12,750	390	11,700	450	13,500	465	13,950
McIntyre,	240	8,184	267	153	5,652	146	5,448	143	5,361	140	5,124
McIntyre,	264	13,231	267	175	6,292	184	6,554	187	6,641	177	6,350
McIntyre,	163	15,452	160	209	7,767	215	7,953	216	7,984	220	8,108
Clermont,	250	13,111	260	104	8,080	383	7,760	376	7,520	400	8,000
Antrim,											
Antrim,	280	9,240	276	219	6,132	207	5,796	205	5,740	220	6,160
Fall Brook,	185	5,550	188	150	3,600	155	3,720	165	3,960	160	3,840
Fall Brook,	250	8,750	253	150	3,900	165	4,290	155	4,030	150	3,900
Arnot,	285	20,520	269	191	6,080	150	3,800	180	4,760	180	4,760
Arnot,	375	15,000	480	150	5,100	120	3,600	130	4,160	160	5,120
Arnot,	483	31,395	482	691	16,584	742	17,808	698	16,752	662	15,888
Morris Run,	330	29,700	333	120	6,000	120	6,000	140	7,000	130	6,500
Morris Run,	330	49,000	333	130	5,200	130	5,200	140	5,600	120	4,800
Morris Run,	330	29,700	338	150	6,000	130	5,200	140	5,600	130	5,200

Collieries in the Third Bituminous Mine District of Pennsylvania—Continued.

Average velocity per minute for the month.	Outlet—size of—feet.	VENTILATION. 1ST WEEK. Velocity of air current per minute at outlet.	1ST WEEK. Number of cubic feet per minute passing out.	2D WEEK. Velocity of air current per minute at outlet.	2D WEEK. Number of cubic feet per minute passing out.	3D WEEK. Velocity of air current per minute at outlet.	3D WEEK. Number of cubic feet per minute passing out.	4TH WEEK. Velocity of air current per minute at outlet.	4TH WEEK. Number of cubic feet per minute passing out.	Average number of feet passing out per month.	LOCATION.
202	64	900	57,600	550	3,240	610	39,040	640	41,600	43,370	Barclay, Bradford county.
. . .	36	300	10,800	400	14,400	400	14,400	450	16,200	13,950	do. do.
. . .	36	250	9,000	300	10,800	210	7,560	200	7,200	8,640	do. do.
73	30	259	7,770	259	11,470	299	8,670	309	9,270	9,295	Carbon Run, do.
160	32	379	11,938	389	12,253	399	12,568	399	12,568	12,332	do. do.
. . .	50	149	7,450	169	8,450	139	6,950	149	7,450	7,575	do. do.
. . .	. . .	. . .	. .	. . .	. .	. .	. . . .	. . .	. .	. .	Ben's Creek, Blair county.
. . .	40	. . .	. .	. . .	. .	. .	. . . .	. . .	. .	. .	Porter, do.
272	38	440	15,400	540	17,900	390	13,650	509	19,200	16,550	Lloydville, do.
137	48	461	22,128	375	18,000	. .	. .	428	20,571	20,208	Benulngton, do.
96	38	350	13,604	360	13,680	362	13,736	365	13,870	13,727	Johnstown, Cambria county.
64	61	358	21,838	360	21,960	362	22,082	366	22,326	22,051	do. do.
44	31	110	3,410	115	3,565	120	3,720	130	4,030	3,681	do. do.
69	30	140	4,200	133	3,990	135	4,050	130	3,900	4,035	do. do.
. . .	28	246	7,901	237	7,920	279	9,105	312	9,020	8,060	Sonman, do.
386	34	390	13,280	398	13,592	418	14,222	447	15,210	14,068	Snow Shoe, Centre county.
300	41	282	11,582	301	12,377	292	11,990	272	11,184	11,781	do. do.
.	36	330	9,362	330	9,362	. .	. .	. . .	.	9,286	Houtzdale, Clearfield county.
223	26	355	13,836	320	12,614	340	13,312	355	13,836	12,864	Goss Run, do.
367	48	190	10,752	200	11,932	210	11,664	210	11,666	11,303	Mapleton, do.
547	63	725	45,675	700	44,100	715	45,045	735	46,305	45,281	Houtzdale, do.
193	.	.	. . . .	.	. . . .	. . .	. . . .	496	14,880	14,880	do. do.
200	60	.	. . . .	. . .	. . . .	. .	. . . .	200	12,000	12,000	do. do.
170	70	410	14,400	4,200	14,806	420	14,600	490	16,500	14,720	do. do.
58	15	680	10,200	650	9,750	700	10,500	632	9,480	10,221	do. do.
425	45	600	27,000	610	27,450	600	27,000	620	27,900	27,337	Goss Run, do.
215	30	550	16,500	530	15,900	560	16,800	580	17,400	16,650	do. do.
231	36	660	23,760	665	23,940	660	13,760	665	23,940	27,100	do. do.
182	41	180	7,920	200	8,800	200	8,800	180	7,920	8,335	Sobleski, do.
. .	32	110	4,704	150	5,884	100	4,384	110	4,904	4,919	Morrisdale, do.
103	30	200	6,000	250	6,860	230	6,460	230	6,460	6,730	Glenwood, do.
66	36	50	3,240	40	2,664	100	4,824	30	2,304	3,640	Decatur, do.
157	28	150	5,152	160	5,432	150	5,152	250	7,952	5,987	Laurel Run, do.
300	42	350	12,600	300	11,700	350	14,700	300	12,600	12,100	Du Bois, do.
. . .	42					. . .	. .	. . .		. . .	do. do.
236	48	213	11,808	212	11,760	210	11,664	213	11,808	11,760	St. Mary's, Elk county.
180	24	220	5,280	220	5,280	220	5,280	220	5,280	5,280	do. do.
440	30	614	18,420	628	18,840	628	18,804	614	19,000	18,630	Daguscahonda, Elk county.
123	30	150	4,500	120	3,600	160	4,800	175	5,250	4,340	Mooredale, Huntingdon co.
432	30	450	13,500	400	12,000	450	13,500	480	13,400	13,350	Robertsdale, do.
145	23	224	10,805	210	10,235	207	10,113	200	9,828	10,245	McIntyre, Lycoming county.
180	27	280	14,620	287	15,282	286	15,236	274	14,677	14,953	do. do.
215	42	260	16,365	250	15,820	253	15,982	257	16,200	16,091	do. do.
389	40	306	12,240	267	10,680	290	11,600	257	10,280	11,175	Clermont, McKean county.
. .	35	530	18,550	550	19,250	560	19,600	580	20,300	19,425	Antrim, Tioga county.
242	27	375	10,125	370	9,990	375	10,125	350	9,450	9,922	do. do.
157	30	250	7,500	260	7,800	255	7,650	260	7,800	7,687	Fall Brook, do.
155	60	310	18,600	320	19,200	315	18,900	320	19,200	18,975	do. do.
175	42	700	29,400	590	24,780	672	28,234	689	22,866	27,772	Arnot, do.
140	40	343	13,420	125	5,000	250	9,000	358	14,320	10,510	do. do.
698	70	447	32,260	483	33,710	438	30,660	429	30,009	31,715	do. do.
128	72	680	48,960	650	46,800	680	48,960	660	47,520	47,680	Morris Run, do.
130	66	680	44,880	640	42,240	680	44,880	660	43,560	43,860	do. do.
138	52	670	34,840	700	36,400	680	35,360	680	35,360	34,280	do. do.

A STATEMENT *of the Names, Power Capacity, and Ventilation in the* *vania, for the Month*

NAME OF COLLIERY.	NAME OF OPERATOR.	Character of coal bituminous or semi-bituminous.	Slope.	Drift.	Shaft.	Fan.	Furnace.	Number of headings.	Pumps—how many.
Barclay,	Towanda Coal Company,	Semi-bitum.		1			1	2	2
Barclay,	do. do.	do.		1			1	2	
Barclay,	do. do.	do.		1			1	4	
Barclay,	do. do.	do.		1			1	3	
Porter,	Denniston, Porter & Co.,	do.			1			3	
Bennington Shaft,	Blair Iron and Coal Company,	do.			1	1		5	2
Rolling-Mill Mine,	Cambria Iron Company,	do.		1		1		6	
Blast Furnace Mine,	do. do.	do.	1				1	3	2
Conemaugh,	do. do.	do.		1			1	2	
Woodvale,	do. do.	do.		1			1	3	
Ben's Creek,	S. H. Smith,	do.		1				4	
Lloydsville,	Bell's Gap Railroad Company,	do.		1		1		4	
Mount Hope,	Mount Hope Coal Company,	Bituminous,		1			1		
Snow Shoe,	Bellefonte & Snow Shoe R.R.Co.	do.		1				3	
Snow Shoe,	do. do. do.	do.		1				4	
Goss Run,	Berwind, White & Co.,	Semi-bitum.		1			1		
Mapleton,	do. do.	do.		1			1		
Sterling, No. 1,	Robert Hare, Powell & Co.,	do.		1			1	7	
Sterling, No. 1,	do. do. do.	do.		1			1	8	
Sterling, No. 2,	do. do. do.	do.		1				4	
Webster,	Webster Coal Company, Limited,	do.		1			1		
Webster,	do. do. do.	do.		1			1		
Excelsior,	Fisher Bros. & Miller,	Bituminous,		1			1	8	
Penn,	Reakirt Bro. & Co.,	do.		1			1	3	
Moshannon,	Moshannon Coal Company,	do.		1			1	1	
Glenwood,	Coulter & Huff,	do.		1			1	4	
Laurel Run,	Nuttall, Bacon & Co.,	do.		1			1	3	
Decatur,	Decatur Coal Company,	do.		1			1	2	
Rochester,	Bell, Lewis & Yates,	do.		1			1		
Sandy Lick,	Sandy Lick Coal Company,	do.		1			1	4	1
Daguscahonda,	North-Western Mining & Ex. Co.	do.		1			1	4	
Saint Mary's,	Saint Mary's Coal Company,	do.		1					
Robertsdale Mine,	Rock Hill Iron and Coal Co.,	Semi-bitum.		1			1	4	
Mooredale,	Reakirt Bro. & Co.,	do.		1				3	
McIntyre,	McIntyre Coal Company,	do.		1			1	10	
McIntyre,	do. do.	do.		1			1	12	
McIntyre,	do. do.	do.		1			1	8	
Clermont,	Buffalo Coal Company,	Bituminous,		1			1		
Antrim,	Fall Brook Coal Company,	Semi-bitum.		1			1		
Antrim,	do. do.	do.		1			1		
Fall Brook,	do. do.	do.		1			1	5	1
Fall Brook,	do. do.	do.		1			1	21	
Arnot,	Blossburg Coal Company,	do.		1			1		
Arnot,	do. do.	do.		1			1		
Arnot,	do. do.	do.		1			1		
Morris Run,	Morris Run Coal Mining Co.,	do.		1			1	5	
Morris Run,	do. do.	do.		1			1	8	
Morris Run,	do. do.	do.		1			1	13	

respective Collieries in the Third Bituminous Mine District of Pennsyl-of April, 1879.

Number of engines.	Horse power.	Boilers—how many.	Number of miners—men.	Number of miners—boys.	Other persons.	Total number of persons.	Number of mules inside.	Number of mules outside.	Total production in tons.	VENTILATION.							
												1ST WEEK.		2D WEEK.		3D WEEK.	
										Number of openings.	Inlet—size of—sq feet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.
2	. .	2	240	60	74	374	60	7									
.	. .	. .	. . .	. . .	. . .	. . .	. . .	. .	. . . .	2	72	250	18,000	200	14,400	140	10,080
. .	. .	. .	. . .	. . .	. . .	. . .	. .	. .	.	2	38	220	8,360	180	6,840	160	6,080
1	20	2	46	10	28	84	10	3	3,620	2	40	2 0	. .	3 5	.	320	
3	108	7	126	13	48	187	24	. .	8,557	4	140	171	24,000	205	28,800	205	28,000
. .	. .	. .	155	31	65	251	39	. .	12,802	2	90	98	8,820	95	8,550	95	8,640
2	50	2	18	6	10	34	7	1	1,741	2	88	125	11,264	132	11,616	130	11,440
. .	. .	. .	15	3	1	19	1	1	963	2	36	95	3,420	90	3,240	94	3,384
. .	. .	. .	23	2	2	27	2	1	1,792	2	35	118	4,130	112	3,920	118	4,130
. .	. .	. .	26	2	5	33	2	2	1,802	2							
1	. .	2	80	6	13	99	18	. .	5,266	2	38	420	14,700	370	12,950	440	15,400
. .	. .	. .	47	6	3	56	5	. .	4,000	2	42	200	10,425	190	9,903	210	9,930
. .	. .	. .	24	5	9	38	4	. .	1,541	2	33	350	11,563	360	11,883	379	12,523
. .	. .	. .	32	8	5	45	4	.	249	2	48	243	11,697	272	13,094	263	12,628
. .	. .	. .	92	18	10	120	10	.	6,953	2	56	185	12,289	190	12,569	200	13,104
. .	. .	. .	37	5	9	51	4	2	.	12	42	152	7,110	132	7,130	172	6,732
1	12	1	163	30	20	213	17	. .	15,293	2	36	200	13,200	300	19,800	280	18,480
. .	. .	. .	. . .	. . .	.	.	. .	. .	.	. . .	40	400	16,000	400	16,000	400	16,800
. .	. .	. .	42	1	3	46	3	.	3,533	5	40	200	8,000	210	8,400	200	8,000
. .	. .	. .	132	26	26	184	9	2	9,098	2	45	260	11,960	260	11,700	290	13 050
. .	. .	. .	. . .	. . .	. . .	. . .	. . .	. .	. . .	2	46	270	12,150	300	13,800	300	13,800
. .	. .	. .	140	13	17	170	7	12	12,000	2	64	340	21,760	360	23,040	3 0	22,400
. .	. .	. .	40	4	7	51	4	2	3,100	2	42	70	2,940	90	3,780	83	3,486
. .	. .	. .	36	5	4	45	4	1	3,549	2	56	275	15,900	210	11,760	215	12,040
. .	. .	. .	26	2	3	31	2	1	1,600	2	30	175	5,250	185	5,550	160	4,800
. .	. .	. .	27	8	6	41	4	2	4,500	2	34	280	10,670	110	4 896	170	6,936
. .	. .	. .	27	7	2	36	3	. .	2,750	2	36	20	1,944	35	2,484	15	1,764
. .	. .	. .	198	2	14	214	9	1	1,008	2	56	300	1,680	300	1,680	300	1,680
. .	. .	1	60	3	8	71	6	2	4,000	2	42	250	10,800	225	9,400	250	10,500
1	30	2	90	10	10	110	6	2	4,848	2	30	190	14,149	200	14,138	205	14,953
. .	. .	. .	70	20	9	99	2	3	5,4 6	2	48	2 6	11,592	213	11,808	215	11,904
. .	. .	. .	160	6	14	180	18	3	9,881	2	30	450	13,500	425	12,750	450	13,500
. .	. .	. .	25	2	4	41	2	.	1,161	2	42	200	8,400	200	8,400	220	9,240
. .	. .	. .	50	. . .	13	63	6	1	12,124	2	30	247	8,387	255	8,920	206	7,194
. .	. .	. .	90	16	35	141	17	3	. . . .	2	48	243	13,234	260	14,025	207	11,557
. .	. .	. .	103	20	23	146	8	.	. . .	2	78	140	13,712	154	14,090	130	12,955
. .	. .	. .	137	19	13	190	9	.	7,064	2	67	227	15,209	217	14,539	217	14,539
. .	. .	. .	260	30	121	411	30	. .	17,681								
. .	. .	. .	. .	. . .	. .	. .	. .	. .	. .	2	33	270	8,910	275	9,075	280	9,240
. .	. .	. .	30	9	11	50	8	. .	2,583	2	30	210	6,300	205	6,150	2 0	6,600
. .	. .	. .	39	16	17	72	9	.	4,524	2	35	240	8,400	215	8,575	250	8,400
. .	. .	. .	247	111	73	431	56	1	. . . .	2	72	266	14,889	358	25,776	230	18,000
. .	. .	. .	. . .	. . .	. . .	. . .	. .	. .	. . .	. . .	40	485	19,400	429	17,160	304	12,160
. .	. .	. .	. . .	. . .	. . .	. . .	. .	. .	. . .	. . .	65	483	31,375	483	31,395	483	31,395
2	40	2	55	35	25	115	16	.	5,968	2	90	320	28,800	340	30,600	340	30,600
. .	. .	. .	60	40	25	125	15	2	6,123	2	130	330	42,900	320	41,600	340	44,200
1	20	1	100	64	30	194	19	. .	9,478	2	90	340	36,000	230	29,700	350	31,500

A STATEMENT *of the Names, Power, Capacity, and Ventilation in the respective*

NAME OF COLLIERY.	VENTILATION.									
	4TH WEEK.			1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.	
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Average air current per month at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current per minute at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.
Barclay,				110	5,280	140	6,720	200	9,600	190	9,120
Barclay,				160	7,640	170	8,160	160	7,640	120	5,760
Barclay,	140	10,080	182	180	7,200	210	8,400	160	6,400	110	4,400
Barclay,	210	7,980	192	260	10,400	220	8,800	150	6,000	110	6,400
Porter,	195										
Bennington Shaft,	171	24,000	188	150	7,200	165	7,984	136	6,542	130	6,260
Rolling-Mill Mine	93	8,820	93	93	4,650	90	4,500	92	4,600	98	4,900
Blast Furnace Mine,	125	11,000	128	59	6,240	68	6,528	65	6,240	68	6,528
Conemaugh,	98	3,528	94	45	1,800	40	1,600	42	1,680	50	2,000
Woodvale,	115	4,025	115	62	2,480	60	2,400	63	2,520	62	2,480
Ben's Creek,											
Lloydsville,	440	15,400	417	240	8,400	220	7,000	240	8,400	290	10,150
Mount Hope,	195	10,164	199	155	3,885	150	3,860	165	4,125	155	3,875
Snow Shoe,	369	12,203	358	243	10,803	369	11,094	389	11,676	379	11,585
Snow Shoe,	263	12,628	269	360	10,479	282	12,147	272	11,730	243	10,479
Goss Run,	195	12,832	230	181	12,300	118	8,400	200	11,220	269	10,769
Mapleton,	110	6,132	171	300	11,008	290	10,720	330	11,784	310	11,224
Sterling, No. 1,	255	16,830	246	230	16, 00	220	15,400	200	14,000	240	16,800
Sterling, No. 1,	390	15,600	389	300	19,500	280	18,240	280	18,240	200	13,000
Sterling, No. 2,	150	6,000	149	50	3,900	60	4,200	70	3,500	50	3,250
Webster,	250	11,250	267	220	9,240	210	8,820	230	9,660	200	8,400
Webster,	290	13,370	287	170	6,800	200	8,000	190	7,600	180	7,200
Excelsior,	340	21,760	347	300	21,600	320	23,040	325	23,400	300	21,600
Penn,	78	3,276	77	110	3,850	100	3,500	100	3,500	94	3,290
Moshannon,	175	9,800	219	250	11,500	200	9,200	225	10,350	200	9,200
Glenwood,	190	5,700	177	90	2,160	95	2,280	120	2,880	110	2,640
Laurel Run,	150	6,256	177	60	3,760	30	2,560	50	3,360	40	2,960
Decatur,	50	3,024	30	20	1,728	35	2,208	20	1,728	75	3,488
Rochester,	300	1,680	300	250	1,400	250	1,400	280	1,560	280	1,560
Sandy Lick,	225	9,450	231	250	10,500	225	9,450	250	10,500	225	9,450
Dagnscahonda,	213	15,115	202	237	7,110	244	7,320	250	7,500	261	7,830
St. Mary's,	214	11,856	214	238	11,508	240	11,424	238	11,508	236	11,256
Robertsdale Mine,	400	12,000	431	450	13,500	425	12,750	450	13,500	400	12,000
Mooredale,	210	8,820	207	140	4,704	140	4,704	169	5,376	150	5,040
McIntyre,	190	6,729	224	142	5,333	140	5,274	145	5,416	143	5,361
McIntyre,	215	11,930	231	160	5,706	170	6,147	156	5,739	158	5,797
McIntyre,	157	14,998	143	150	5,936	153	6,029	175	6,153	158	6,184
Clermont,	220	14,720	220	325	7,475	286	6,578	275	6,325	280	6,440
Antrim,											
Antrim,	265	8,745	272	219	6,132	207	5,796	204	5,712	205	5,740
Fall Brook,	215	6,450	210	160	3,840	155	3,720	160	3,840	165	3,960
Fall Brook,	245	8,575	245	145	3,770	150	3,900	155	4,030	150	3,900
Arnot,	312	25,370	296	175	5,600	160	5,120	200	6,400	200	7,040
Arnot,	537	21,480	438	180	5,700	170	5,440	107	4,280	140	4,480
Arnot,	473	30,745	480	680	16,320	706	16,944	590	14,160	644	15,456
Morris Run,	330	29,700	333	120	6,000	130	6,500	130	6,500	120	6,000
Morris Run,	320	41,600	327	130	5,200	130	5,200	140	5,600	130	5,200
Morris Run,	340	30,600	340	150	6,000	140	5,600	150	6,000	140	5,600

Collieries in the Third Bituminous Mine District of Pennsylvania.—Continued.

VENTILATION.											
		1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.			
Average velocity per minute for the month.	Outlet—size of—feet.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Average number of feet passing out per month.	LOCATION.
160	64	600	38,400	600	38,400	400	25,600	400	25,600	32,000	Barclay, Bradford county.
152	72	370	26,640	320	23,040	320	23,040	310	22,320	23,760	do. do.
165	64	400	25,600	400	25,600	310	19,840	300	19,200	22,310	do. do.
197	36	240	8,640	260	9,360	250	9,000	310	8,640	8,910	do. do.
. . .	40	230	. . . .	300	. . . .	320	. .	190	. . .		Porterville, Blair county.
145	352	52	18,304	74	26,048	68	23,936	58	20,416	22,196	Bennington, Blair county.
93	38	365	13,870	362	13,756	368	13,984	368	13,984	13,898	Johnstown, Cambria county.
66	61	360	21,960	362	22,080	359	21,899	365	22,965	22,050	do. do.
44	31	112	3,472	110	3,410	113	4,353	119	3,689	3,518	do. do.
61	30	130	3,900	138	4,410	140	4,420	132	3,960	4,050	do. do.
. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .		Ben's Creek, Cambria county.
247	36	470	16,460	440	15,440	430	15,050	480	16,800	15,935	Lloydsville, Cambria county.
156	42	225	9,450	240	10,080	235	9,870	220	9,180	9,845	Mount Hope, Cameron co.
376	34	400	13,610	408	13,892	418	14,225	337	11,481	13,302	Snow Shoe, Centre county.
278	41	293	12,021	311	12,775	301	12,377	293	12,021	12,798	do. do.
260	36	340	13,312	340	13,312	350	13,662	340	13,312	13,460	Goss Run, Clearfield county.
330	48	190	10,759	200	11,222	210	11,664	190	10,752	10,850	Mapleton, Clearfield county.
210	40	350	14,000	400	16,000	300	12,000	400	16,000	14,500	Sterling, Clearfield county.
240	50	400	20,000	350	17,500	300	15,000	400	20,000	20,000	do. do.
60	56	150	8,400	120	6,720	130	7,280	150	8,400	7,800	do. do.
215	30	560	16,800	550	16,500	600	18,000	550	16,500	16,950	Goss Run, Clearfield county.
185	27	660	17,820	700	18,900	700	18,900	710	19,170	18,617	do. do.
323	36	640	23,040	650	23,400	640	23,440	650	23,400	23,220	do. do.
98	15	600	9,000	580	8,700	600	9,000	700	10,500	9,650	Houtzdale, Clearfield county.
218	44	300	13,200	250	11,000	260	11,440	250	11,000	12,650	Sobieski, Clearfield county.
103	30	200	6,000	225	6,750	230	6,900	230	6,900	6,697	Glenwood, Clearfield county.
45	28	360	11,032	150	5,152	160	5,432	140	4,872	6,622	Laurel Run, Clearfield co.
37	25	40	1,850	70	2,600	25	1,475	75	2,725	2,725	Decatur, Clearfield county.
260	56	300	1,660	300	1,680	300	1,680	300	1,680	1,680	Du Bois, Clearfield county.
231	.	250	10,500	225	9,450	250	10,500	225	9,450	9,890	do. do.
248	30	485	14,550	490	14,700	515	15,450	519	15,570	15,065	Daguscahonda, Elk county.
238	48	215	11,904	213	11,808	214	11,856	210	11,664	11,808	St. Mary's, Elk county.
431	30	425	12,750	400	12,000	450	13,500	425	12,750	12,760	Robertsdale, Huntingdon co.
147	30	220	6,600	209	6,300	205	6,150	230	6,900	6,800	Mooredale, Huntingdon co.
142	23	215	10,439	210	10,235	207	10,113	213	10,357	10,286	McIntyre, Lycoming county.
161	25	155	13,792	263	14,165	225	12,396	240	13,094	13,361	do do.
154	42	240	15,276	245	15,548	220	14,190	245	15,548	15,140	do. do.
291	40	285	11,400	270	10,800	258	10,320	266	10,640	10,790	Clermont. McKean county.
. . .	35	530	18,550	520	17,200	510	17,850	500	17,500	17,775	Antrim, Tioga county.
208	27	378	10,206	370	9,990	350	9,450	375	10,125	9,942	do. do.
160	30	275	6,750	225	6,750	235	7,550	230	6,900	6,882	Fall Brook, Tioga county.
150	60	225	16,500	280	16,800	290	17,400	280	16,800	16,875	do. do.
138	42	829	34,818	590	24,780	393	16,406	841	35,322	27,831	Arnot, Tioga county.
149	40	350	14,000	528	21,120	393	13,720	465	18,630	14,360	do. do.
655	70	447	31,290	455	31,850	447	31,290	429	30,030	31,115	do. do.
125	72	650	46,800	680	48,960	680	48,960	670	48,240	47,680	Morris Run, Tioga county.
133	66	660	43,560	650	42,900	680	44,880	650	42,900	42,980	do. do.
145	52	680	35,360	630	32,760	700	36,400	680	35,360	34,670	do. do.

A STATEMENT *of the Names, Power, Capacity, and Ventilation in the vania, for the Month*

NAME OF COLLIERY.	NAME OF OPERATOR.	Character of coal—bituminous or semi-bituminous.	Slope.	Drift.	Shaft.	Fan.	Furnace.	Number of headings.	Pumps—how many.
Barclay,	Towanda Coal Company,	Semi-bitum.		1			1	2	
Barclay,	do. do.	do.		1			1	2	2
Barclay,	do. do.	do.		1			1	5	
Barclay,	do. do.	do.		1			1	3	
Carbon Run,	Schraeder Coal Company,	do.		1			1		
Carbon Run,	do. do.	do.		1			1		
Carbon Run,	do. do.	do.		1			1		
Carbon Run,	do. do.	do.		1			1		
Porter,	Dennistón, Porter & Co.,	do.			1			3	
Bennington Shaft,	Blair Iron and Coal Company,	do.			1	1		7	2
Rolling-Mill Mine,	Cambria Iron Company,	do.		1		1		6	
Blast Furnace Mine,	do. do.	do.	1				1	3	2
Conemaugh,	do. do.	do.		1			1		
Woodvale,	do. do.	do.		1			1		
Lloydville Mine,	Bell's Gap Railroad Company,	do.		1		1			
Sonman,	Dysart & Co.,	do.		1			1		
Moshannon,	Moshannon Coal Company,	Bituminous,		1			1	2	
Sterling, No. 1,	R. H. Powell & Co.,	Semi-bitum.		1			1	7	
Sterling, No. 1,	do.	do.		1			1	7	
Sterling, No. 2,	do.	do.		1			1	7	
Penn,	Reakirt Brothers & Co.,	Bituminous,		1			1	3	
Webster,	Webster Coal Company, Limited	do.		1			1		
Webster,	do. do.	do.		1			1		
Ocean,	Whitehead & Co.,	do.		1			1		
Excelsior,	Fisher Brothers & Miller,	do.		1			1	10	
Goss Run,	Berwind, White & Co.,	Semi-bitum.		1			1	4	
Mapleton,	do. do.	do.		1			1		
Laurel Run,	Nuttall, Bacon & Co.,	Bituminous,		1			1	3	
Decatur,	Decatur Coal Company,	do.		1			1	3	
Glenwood,	Campbell Brothers,	do.		1			1	4	
Morrisdale,	R. B. Wigton,	do.		1			1		
Sandy Lick,	Sandy Lick Coal Company,	do.		1			1	2	1
Snow Shoe,	Bellefonte & Snow Shoe R. R. Co.	do.		1			1	3	2
Snow Shoe,	do. do.	do.		1			1	4	1
Mt. Hope,	C. Elias & Co.,	do.		1			1		
St. Mary's,	St. Mary's Coal Company,	do.		1			1		
Daguscahonda,	N. W. Mining & Exchange Co.,	do.		1			1	3	
Daguscahonda,	do. do.	do.		1			1	5	
Daguscahonda,	do. do.	do.		1			1		
Mooredale,	Reakirt Brothers & Co.,	Semi-bitum.		1				3	
Robertsdale,	Rockhill Iron and Coal Company	do.		1			1	5	
Buttsville,	J. E. Butts,	Bituminous,		1					
Clermont,	Buffalo Coal Company,	do.		1			1		
Antrim,	Fall Brook Coal Company,	Semi-bitum.		1			1		
Antrim,	do. do.	do.		1			1		
Fall Brook,	do. do.	do.		1			1	5	1
Fall Brook,	do. do.	do.		1			1	21	
Arnot,	Blossburg Coal Company,	do.		1			1	2	
Arnot,	do. do.	do.		1			1	3	
Arnot,	do. do.	do.		1			1	4	
Morris Run,	Morris Run Coal Mining Co.,	do.		1			1	5	
Morris Run,	do. do.	do.		1			1	8	
Morris Run,	do. do.	do.		1			1	13	

respective Collieries in the Third Bituminous Mine District of Pennsylvania, month of May, 1879.

Number of engines.	Horse power.	Boilers—how many.	Number of miners—men.	Number of miners—boys.	Other persons.	Total number of persons.	Number of mules inside.	Number of mules outside.	Total production in tons.	VENTILATION.							
												1ST WEEK.		2D WEEK.		3D WEEK.	
										Number of openings.	Inlet—size of—sq. feet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet	Number of cubic feet passing in per minute at inlet.
. .	. .	.	240	60	74	374	60	7	. . . .	2							
1	. .	1	. . .	. . .	. . .	. . .	. . .	. .	. . . .	2							
1	. .	1	. . .	. . .	. . .	. . .	. . .	. .	. . . .	2	72	170	12,240	260	18,720	160	11,520
. .	. .	. .	. . .	. . .	. . .	. . .	. . .	. .	. . . .	2	38	200	7,600	160	6,080	180	6,840
. .	. .	. .	115	25	25	165	15	6	7,500	2							
. .	. .	. .	. . .	. . .	. . .	. . .	. . .	. .	. .	2							
. .	. .	. .	. . .	. . .	. . .	. . .	. . .	. .	. . .	2							
. .	. .	. .	. . .	. . .	. . .	. . .	. . .	. .	. . .	2							
1	20	2	45	12	24	81	12	2	3,424	2	40	320	11,280	260	8,400	220	8,800
3	108	7	123	13	48	184	19	. .	8,200	2	140	158	22,155	171	24,000	190	26,400
. .	. .	. .	160	30	65	255	39	. .	12,874	2	90	99	8,910	96	8,640	95	8,550
2	80	2	16	3	8	27	6	1	684	2	88	125	11,000	128	11,264		
. .	. .		15	3	2	20	1	1	944	2	36	92	3,312	95	3,420	90	3,240
. .	. .	. .	23	2	2	27	2	1	1,591	2	35	112	3,920	109	3,850	116	4,060
. .	. .	. .	70	4	20	94	17		5,000	2	36	360	12,600	380	13,300	350	12,250
. .	. .	. .	40	5	5	50	4	1	2,000	2	54	171	8,104	178	8,110	180	8,355
. .	. .	. .	35	5	4	44	4	1	2,964	2	56	220	12,320	225	12,600	190	10,640
1	12	1	190	15	26	231	16	. .	11,563	2	72	300	14,400	175	12,700	230	16,560
. .	. .	. .	. . .	. . .	. . .	. . .	. .	. .	. .	2	36	200	10,800	280	10,080	290	10,440
. .	. .	.	40	2	4	46	3		3,439	2	40	140	5,600	180	7,200	120	4,800
. .	. .	. .	40	6	4	50	5	2	3,382	2	48	160	4,080	80	4,040	78	3,740
. .	. .	. .	136	34	30	200	7	2	6,290	2	46	290	13,340	260	11,960	270	12,420
. .	. .	. .	. . .	. . .	. . .	. . .	. .	. .	. .	2	45	270	12,150	240	10,800	250	11,250
. .	. .	. .	250	20	25	295	16	4	16,500	2	61	400	24,400	420	25,620	400	25,100
. .	. .	. .	160	12	20	192	8	8	11,000	2	64	260	15,440	265	16,960	250	15,000
. .	. .	. .	76	21	13	110	6	. .	7,227	2	56	190	12,560	185	12,289	200	13,104
. .	. .	. .	36	6	9	51	5	2	. . . .	2	42	150	7,770	140	7,350	160	8,190
. .	. .	. .	27	8	6	41	3	3	. . . .	2	24	100	4,556	150	6,256	130	5,576
. .	. .	. .	25	6	2	33	3	. .	. . . .	2	36	70	3,749	40	2,664	30	2,304
. .	. .	. .	23	2	3	28	2	. .	1,639	2	30	175	5,250	185	5,550	160	4,800
. .	. .	. .	79	16	16	111	7	4	9,037	2	36	100	6,206	112	6,586	90	4,806
1	. .	1	50	3	7	60	6	2	4,000	2	42	250	10,500	250	10,500	225	9,450
. .	. .	. .	21	7	4	32	3	. .	1,710	2	33	369	12,203	311	11,596	311	11,596
. .	. .	. .	40	14	7	61	4	. .	5,209	2	47	243	11,697	272	13,094	263	12,628
. .	.	. .	50	5	6	61	5	1	3,500	2	40	260	10,425	190	9,903	210	11,947
. .	.	. .	80	20	10	110	2	3	6,669	2	54	205	12,852	202	12,690	205	12,852
. .	. .	. .	. . .	. . .	. . .	. . .	. .	. .	. .	2	30	233	7,000	267	8,000	267	8,000
1	25	2	90	10	4	104	6	2	7,100	2	30	200	3,000	115	3,500	200	4,000
.	. .	. .	. . .	. . .	. . .	. . .	. . .	. .	. .	2	17	177	3,000	235	4,000	235	4,000
. .	. .	. .	25	3	2	30	2	. .	930	2	42	200	8,400	180	7,560	185	7,770
. .	. .	. .	177	15	14	206	16	5	8,005	2	30	350	10,500	375	11,250	400	12,000
. .	. .	. .	43	7	22	73	10	2	2,522	2	36	195	9,420	201	7,236	197	7,092
. .	. .	. .	105	7	13	125	7	. .	7,567	2	40						
. .	. .	. .	300	30	121	451	28	. .	15,863	2							
. .	. .	. .	. . .	. . .	. . .	. . .	. .	. .	. . . .	. .	33	490	16,170	495	16,335	490	16,170
. .	. .	. .	30	9	11	50	9	. .	2,181	2	30	215	6,450	210	6,300	200	6,000
. .	. .	. .	39	16	19	74	11	. .	3,330	2	35	255	8,925	245	8,575	250	8,750
. .	. .	. .	251	109	76	436	56	1	. . . .	2	42	751	31,542	956	39,152	895	36,790
. .	. .	. .	. . .	. .	. .	. . .	. .	. .	. . . .	. .	40	483	19,320	250	10,000	357	14,280
. .	. .	. .	. . .	. . .	. . .	. . .	. .	. .	. . . .	. .	65	447	29,055	465	30,225	449	29,185
2	40	2	75	35	25	135	16	. .	7,225	2	90	350	31,500	400	36,000	340	3,600
.	. .	. .	60	40	30	130	15	. .	5,190	2	130	350	45,500	400	52,000	380	49,400
1	20	1	114	68	25	207	19	. .	8,450	2	90	360	32,400	340	3,600	380	44,200

A STATEMENT *of the Names, Power, Capacity, and Ventilation in the respective*

NAME OF COLLIERY.	VENTILATION.									
	4TH WEEK.			1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.	
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Average air current per month at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current per minute at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.
Barclay,				100	4,800	160	7,680	110	5,280	150	7,250
Barclay,				100	4,800	110	5,280	120	5,790	100	4,800
Barclay,	200	14,400	197	260	10,400	140	7,200	200	8,000	230	9,200
Barclay,	160	6,080	175	160	7,680	100	4,800	160	7,680	130	6,240
Carbon Run,											
Carbon Run,											
Carbon Run,				109	1,308	119	1,428	129	1,548	129	1,548
Carbon Run,				57	590	69	690	69	690	69	690
Porter,	340	13,600									
Bennington Shaft,	205	28,800	181	136	6,500	142	6,800	150	7,400	158	7,600
Rolling-Mill Mine,	97	8,730	97	95	4,750	92	4,600	90	4,500	94	4,700
Blast-Furnace Mine,			126	64	6,144	65	6,240				
Conemaugh,	96	3,456	93	43	1,720	44	1,760	40	1,600	50	2,220
Woodvale,	114	3,499	113	63	2,720	60	2,400	65	2,600	65	2,600
Lloydville Mine,	470	16,450	390	250	8,750	240	8,400	210	7,350	260	9,100
Sonman,	182	9,302									
Moshannon,	210	11,760	210	200	10,000	225	11,250	200	10,000	225	11,250
Sterling, No. 1,	240	17,280	211	210	8,400	120	4,320	220	10,560	180	8,640
Sterling, No. 1,	350	12,600	305	200	6,000	180	5,400	200	6,000	230	6,900
Sterling, No. 2,	150	6,000	162	70	4,200	85	5,600	75	3,750	100	5,000
Penn,	104	4,992	96	75	2,625	70	2,450	70	2,450	80	2,800
Webster,	280	12,880	275	190	7,600	200	8,000	180	7,200	170	6,800
Webster,	260	11,700	255	220	9,240	210	8,820	200	8,400	280	9,240
Ocean,	420	25,620	412								
Excelsior,	260	15,440	258	340	18,440	345	19,320	335	18,760	340	18,440
Goss Run,	175	11,746	192	230	11,181	240	12,203	220	10,769	210	10,357
Mapleton,	150	7,770	150	360	12,400	370	12,720	380	12,856	360	12,560
Laurel Run,	150	6,256	132	80	4,560	85	4,476	80	4,560	100	5,360
Decatur,	20	19,144	40	90	3,968	70	3,320	40	2,368	50	2,688
Glenwood,	190	5,700	177	90	2,160	95	228	120	2,280	110	264
Morrisdale,	90	4,836	97								
Sandy Lick,	255	9,450	230	250	10,500	250	10,500	250	10,760	225	9,450
Snoe Shoe,	340	11,245	368	399	11,385	360	10,805	379	11,389	360	10,803
Snoe Shoe,	265	12,628	246	263	11,313	282	12,147	272	11,730	253	10,896
Mount Hope,	195	10,640	199	155	3,875	150	3,375	165	4,125	155	3,875
St. Mary's,	204	12,798	204	208	11,568	206	11,472	205	11,424	203	11,328
Daguscahonda,	317	9,500	271	200	6,000	250	7,500	250	7,500	280	8,500
Daguscahonda,	100	3,000	114								
Daguscahonda,	206	3,500	213	730	2,500	175	3,500	150	3,000	150	3,000
Mooredale,	195	8,190	190	160	5,776	140	4,704	120	4,032	130	4,368
Robertsdale,	400	12,000	381	350	10,500	375	17,250	400	12,000	400	12,000
Buttsville,	204	7,340	199								
Clermont,				205	7,625	354	8,850	285	7,125	290	7,250
Antrim,											
Antrim,	488	16,104	490	300	7,500	305	7,625	300	7,500	295	7,375
Fall Brook,	220	6,600	211	170	4,080	160	3,840	165	3,960	170	4,080
Fall Brook,	260	9,100	252	160	4,160	150	3,900	155	4,030	165	4,290
Arnot,	750	31,542	839	447	14,304	429	13,728	278	8,896	250	8,000
Arnot,	410	16,400	375	125	5,000	143	5,720	196	7,840	286	11,440
Arnot,	411	26,713	443	608	14,592	630	15,120	620	14,880	527	12,648
Morris Run,	400	36,000	373	130	6,500	150	7,500	140	7,000	150	7,500
Morris Run,	350	45,500	370	130	5,200	160	6,400	150	6,000	140	5,600
Morris Run,	385	34,650	366	150	6,000	130	5,200	160	6,400	170	6,800

Collieries in the Third Bituminous Mine District of Pennsylvania.—Continued.

Average velocity per minute for the month.	Outlet—size of—sq. feet.	VENTILATION. 1ST WEEK. Velocity of air current per minute at outlet.	1ST WEEK. Number of cubic feet per minute passing out.	2D WEEK. Velocity of air current per minute at outlet.	2D WEEK. Number of cubic feet per minute passing out.	3D WEEK. Velocity of air current per minute at outlet.	3D WEEK. Number of cubic feet per minute passing out.	4TH WEEK. Velocity of air current per minute at outlet.	4TH WEEK. Number of cubic feet per minute passing out.	Average number of feet passing our per month.	LOCATION.
130	64	260	16,640	250	16,000	255	16,320	325	20,900	17,465	Barclay, Bradford county.
107	72	305	21,960	300	21,600	330	23,760	210	15,100	20,590	do. do.
207	64	250	15,900	210	13,440	200	12,400	250	15,900	14,410	do. do.
137	36	260	9,360	200	7,200	210	7,560	230	8,280	8,100	do. do.
. .	315	379	11,938	309	9,733	329	10,363	449	14,143	11,544	Carbon Run, do.
. . .	50	189	9,450	199	9,950	189	9,450	199	9,950	9,700	do. do.
1,548	91	299	27,209	409	37,219	319	29,029	219	19,929	25,846	do. do.
690	30	309	9,270	279	8,370	289	8,670	299	8,970	8,820	do. do.
. . .	40	360	14,400	300	12,000	250	10,000	360	14,400	13,390	Porterville, Blair county.
146	352	59	21,000	55	19,000	63	22,000	68	24,000	21,562	Bennington, do.
93	38	368	13,980	365	13,870	360	13,680	365	13,870	13,851	Johnstown, Cambria county.
64	61	355	21,685	360	21,960	. . .	. . .	. . .	. . .	21,807	do. do.
44	39	110	3,410	114	3,534	108	3,348	118	3,688	3,487	do. do.
63	30	135	4,050	128	3,840	136	4,080	134	4,020	3,997	do. do.
240	36	400	14,000	420	14,700	400	14,000	536	18,550	15,312	Lloydsville, do.
. . .	28	241	7,801	231	7,108	296	8,600	353	8,610	. .	Sonman, do.
10625	44	360	15,840	340	14,960	300	13,200	350	15,400	14,850	Moshannon, Clearfield co.
182	80	260	16,000	220	17,600	180	14,400	250	20,000	19,640	Sterling, Clearfield county.
202	60	200	12,000	240	14,400	210	12,600	300	18,000	18,980	do. do.
82	72	80	5,570	75	5,400	70	5,040	90	6,480	5,640	do. do.
. 78	15	290	9,000	550	8,250	560	8,400	600	9,000	8,760	Houtzdale, do.
185	27	720	19,440	680	18,360	660	17,820	730	19,710	18,832	Goss Run, do.
212	30	580	17,400	560	16,800	540	16,200	590	17,700	17,025	do. do.
. .	45	530	23,850	500	22,500	520	23,400	520	23,400	23,387	do. do.
340	36	660	23,760	665	23,940	660	23,760	665	23,940	28,000	do. do.
236	36	350	13,662	320	12,614	330	12,963	320	12,614	13,280	do. do.
367	48	200	11,232	210	11,664	230	12,384	220	12,124	11,851	Osceola Mills, do.
86	28	150	5,152	220	7,112	110	4,032	150	5,152	5,162	Laurel Run, do.
62	25	100	3,350	80	2,850	40	2,850	30	1,600	2,412	Decatur, do.
103	30	200	6,000	225	6,750	230	6,900	230	6,900	6,637	Glenwood, do.
. . .	40	110	3,481	120	3,611	100	3,151	90	2,921	3,291	Morrisdale, do.
200	. .	250	10,500	250	10,500	225	9,450	225	9,450	10,000	Du Bois, do.
367	34	389	13,290	398	13,562	408	13,892	424	14,426	15,788	Snow Shoe, Centre county.
264	41	292	11,980	311	17,060	301	12,577	292	11,980	12,278	do. do.
156	41	225	9,450	240	10,089	245	9,870	220	9,180	9,895	Cameron, Cameron county.
205	54	203	11,744	200	12,036	203	12,744	202	12,690	12,553	St. Mary's, Elk county.
245	30	465	14,000	500	15,000	485	14,500	515	15,500	14,680	Daguscahonda, Elk county.
. . .	20	. . .	. . . .	. . .	. . . .	250	5,000	265	5,300	5,680	do. do.
150	. . .	. . .	. . . .	. .	. . . .	. .	. . . .	. . .	. . . .	. . . .	do. do.
137	30	225	6,750	200	4,000	210	6,300	225	6,450	6,160	Moredale, Huntingdon co.
381	30	400	12,000	400	12,000	450	13,500	450	13,500	12,750	Robertsdale, do.
. . .	36	285	10,260	293	10,548	290	10,440	300	10,800	10,360	Buttsville, McKean county.
7,712	40	258	10,320	266	10,640	248	9,920	260	10,400	10,320	Clermont. do.
. . .	35	800	28,000	775	27,125	770	26,950	790	27,660	27,431	Antrim, Tioga county.
300	27	495	13,365	490	13,230	492	13,280	500	13,500	13,344	do. do.
166	30	235	7,050	230	6,900	220	6,600	235	7,050	6,900	Fall Brook, do.
150	60	350	21,000	320	19,200	340	20,400	325	19,500	20,025	do. do.
351	72	268	19,096	302	21,744	312	22,464	196	14,112	19,354	Arnot, do.
187	40	411	16,440	483	19,320	501	20,040	501	20,040	18,960	do. do.
596	70	420	29,400	428	27,960	430	30,100	365	25,550	28,762	do. do.
143	72	620	44,640	810	58,320	600	43,200	812	58,464	53,280	Morris Run, do.
146	66	620	40,920	800	52,800	790	52,140	670	44,220	49,620	do. do.
153	52	750	39,000	690	35,880	690	35,880	700	36,400	35,790	do. do.

A STATEMENT *of the Names, Power, Capacity, and Ventilation in the* *vania, for the Month*

NAME OF COLLIERY.	NAME OF OPERATOR.	Character of coal—bituminous or semi-bituminous.	Slope.	Drift.	Shaft.	Fan.	Furnace.	Number of headings.	Pumps—how many.
Barclay,	Towanda Coal Company,	Semi-bitum.		1			1	3	2
Barclay,	do. do.	do.		1			1	2	
Barclay,	do. do.	do.		1			1	5	
Barclay,	do. do.	do.		1			1	3	
Porter,	Denniston, Porter & Co.,	do.			1			3	
Bennington Shaft,	Blair Iron and Coal Company,	do.			1	1		7	2
Rolling-Mill Mine,	Cambria Iron Company,	do.		1		1		7	
Conemaugh,	do. do.	do.		1			1	2	
Woodvale,	do. do.	do.		1			1	3	
Lloydsville,	Bell's Gap Railroad Company,	do.		1		1		2	
Mount Hope,	Mount Hope Coal Company,	Bituminous,		1			1		
Moshannon,	Moshannon Coal Company,	do.		1			1	1	
Sterling, No. 1,	Robert Hare Powell & Co.,	Semi-bitum.		1			1	7	
Sterling, No. 1,	do. do.	do.		1			1	8	
Sterling, No. 2,	do. do.	do.		1				7	
Webster,	Webster Coal Company, Limited,	do.		1			1		
Webster,	do. do.	do.		1			1		
Excelsior,	Fisher Bro. & Miller,	Bituminous,		1			1		
Goss Run,	Berwind, White & Co.,	Semi-bitum.		1			1	4	
Eureka,	do. do.	do.		1			1		
Mapleton,	do. do.	do.		1			1		
Rural Run,	Nuttall, Bacon & Co.,	Bituminous,		1			1	4	
Decatur,	Decatur Coal Company,	do.		1			1	2	
Morrisdale,	R. B. Wigton,	do.		1			1		
Glenwood,	Coulter & Huff,	do.		1			1	4	
St. Mary's,	St. Mary's Coal Company,	do.		1					
Cascade,	Kaul & Hall,	do.		1			1		
Daguscahonda,	N. W. Mining and Exchange Co.	do.		1			1	3	
Daguscahonda,	do. do.	do.		1			1	4	
Daguscahonda,	do. do.	do.		1			1		
Robertsdale,	Rockhill Iron and Coal Company,	Semi-bitum,		1			1	4	
Mooredale,	Reakirt Bro. & Co.,	do.		1			1	3	
McIntyre,	McIntyre Coal Company,	do.		1			1	4	
Buttsville,	J. E. Butts, agent,	Bituminous,		1					
Fall Brook,	Fall Brook Coal Company,	Semi-bitum.		1			1	5	
Fall Brook,	do. do.	do.		1			1	21	1
Antrim,	do. do.	do.		1			1		
Antrim,	do. do.	do.		1			1		
Morris Run,	Morris Run Coal Mining Co.,	do.		1			1	5	
Morris Run,	do. do.	do.		1			1	8	
Morris Run,	do. do.	do.		1			1	13	

respective Collieries in the Third Bituminous District of Pennsyl-of June, 1879.

Number of engines.	Horse-power.	Boilers—how many.	Number of miners—men.	Number of miners—boys.	Other persons.	Total number of persons.	Number of mules inside.	Number of mules outside.	Total production in tons.	VENTILATION.							
												1ST WEEK.		2D WEEK.		3D WEEK.	
										Number of openings.	Inlet—size of—sq. ft.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.
2	. .	2	250	61	74	385	60	7	. . . .	2							
. .	. .	. .	. . .	. . .	. . .	. .	. . .	. .	. . . .	2							
. .	. .	. .	. . .	. . .	. . .	. .	. . .	. .	. . . .	2	72	200	14,400	150	10,800	200	14,400
. .	. .	. .	. . .	. . .	. . .	. .	. . .	. .	. . . .	2	38	240	9,120	240	9,120	200	7,600
1	20	2	44	15	16	75	12	2	3,225	2	40	380	14,400	210	8,400	200	8,000
3	108	7	126	12	48	186	21	1	8,400	2	140	200	28,800	180	25,200	150	21,000
. .	. .	. .	162	30	65	257	38	. .	12,698	2	90	95	8,550	88	7,920	99	8,190
. .	. .	. .	13	4	2	19	1	1	900	2	36	95	3,420	90	3,240	96	3,456
. .	. .	. .	24	4	3	31	2	1	1,675	2	35	110	3,850	114	3,990	120	3,900
1	. .	1	76	4	14	94	18	. .	. . . .	2	33	500	16,100	380	12,360	450	14,580
.	. .	. .	25	3	5	33	5	1	1,000	2	41	200	10,425	190	9,903	210	10,947
. .	. .	. .	36	6	4	46	4	1	3,114	2	56	240	13,440	280	15,660	300	16,800
. .	. .	. .	. .	. . .	. . .	. . .	. . .	. .	. . . .	2	41	300	12,300	290	11,890	290	11,890
1	12	1	180	30	34	244	. . .	. .	12,710	2	40	300	12,000	250	10,600	280	11,200
. .	. .	. .	40	3	5	48	4	. .	3,248	2	40	200	8,000	190	7,600	200	8,000
. .	. .	. .	187	33	23	243	9	4	10,458	2	44	220	10,120	200	9,200	205	9,430
. .	. .	. .	. . .	. . .	. . .	. . .	. . .	. .	. . . .	. .	41	210	9,450	200	9,000	190	8,550
. .	. .	. .	140	15	20	175	11	8	11,000	2	64	220	14,080	225	14,400	220	14,080
. .	. .	. .	100	21	11	132	10	. .	7,624	2	56	190	12,560	185	12,280	200	13,104
. .	. .	. .	49	13	6	68	7	. .	3,223	2	60	. . .	. . . .	. . .	. . . .	175	12,480
. .	. .	. .	39	6	9	54	5	2	. . .	2	42	220	10,412	250	11,000	300	11,212
. .	. .	. .	27	7	6	40	4	3	4,464	2	34	30	2,136	50	2,856	150	6,258
. .	. .	. .	70	8	2	80	3	. .	2,877	2	36	50	3,024	40	2,664	100	4,824
. .	. .	. .	91	24	16	131	7	4	9,424	2	48	70	5,136	110	7,056	90	6,096
. .	. .	. .	20	2	2	24	1	1	1,300	2	35	175	6,125	190	6,650	210	7,350
.	. .	. .	75	10	8	93	2	3	59,000	2	54	202	12,690	200	12,360	204	12,793
1	20	1	20	10	6	36	. . .	. .	1,643	2	42	130	5,460	140	5,184	160	6,720
1	35	2	140	20	3	163	6	2	10,684	2	30	275	8,250	250	7,500	260	7,800
. .	. .	. .	. . .	. . .	. . .	. . .	. . .	. .	. . . .	2	15	280	4,200	275	2,625	275	4,125
. .	. .	. .	. . .	. . .	. . .	. . .	. . .	. .	. . . .	. . .	30	150	4,650	157	4,725	150	4,500
. .	. .	. .	174	6	22	202	21	3	8,378	2	30	400	12,000	375	11,250	450	13,500
.	. .	. .	32	3	2	37	2	. .	1,574	2	42	180	7,560	175	7,350	170	7,140
. .	. .	. .	12	1	7	20	3	. .	900	2	78						
.	. .	. .	45	7	23	75	10	2	2,008	2	36	189	6,804	200	7,200	203	7,308
. .	. .	. .	30	13	15	58	9	. .	1,926	2	30	220	6,600	225	6,750	235	7,050
. .	. .	. .	36	15	19	70	10	. .	2,438	2	35	260	9,100	270	9,450	265	9,275
.	. .	. .	300	30	121	451	28	. .	15,482	2							
. .	. .	. .	. . .	. . .	. . .	. . .	. . .	. .	. . . .	. . .	33	490	16,170	480	16,104	490	16,170
2	40	2	75	35	25	135	16	. .	9,889	2	90	380	34,200	400	36,000	370	33,300
. .	. .	. .	60	40	30	130	15	. .	6,182	2	130	380	49,400	400	52,000	375	48,750
1	20	1	120	68	25	213	19	. .	10,722	2	90	380	34,200	375	33,750	360	32,400

A STATEMENT *of the Names, Power, Capacity, and Ventilation in the respective*

NAME OF COLLIERY.	VENTILATION.									
	4TH WEEK.			1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.	
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Average air current per month at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.
Barclay,	. . .	. . . .	. . .	100	4,800	120	5,160	140	6,720	120	5,760
Barclay,	. . .	. . . .	. . .	160	6,400	160	6,400	100	4,000	200	8,000
Barclay,	210	15,120	190	200	8,000	190	7,600	190	7,600	220	8,800
Barclay,	280	10,640	240	160	6,400	200	8,000	160	6,400	180	7,200
Porter,	340	12,600	309	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Bennington Shaft,	190	27,000	180	166	8,000	150	7,200	145	6,900	155	7,600
Rolling-Mill Mine,	96	8,640	95	92	4,600	90	4,500	95	4,750	93	4,650
Conemaugh,	94	3,800	95	45	1,800	40	1,600	44	1,760	45	1,800
Woodvale,	115	4,025	112	60	2,400	64	2,560	62	2,480	65	2,600
Lloydsville,	430	13,920	439	240	8,400	260	9,100	270	9,450	250	8,750
Mount Hope,	195	10,165	199	155	3,875	130	3,750	163	4,125	153	3,875
Moshannon,	290	16,240	277	220	10,120	300	13,800	320	14,720	300	13,800
Sterling, No. 1,	320	13,120	308	100	5,000	120	6,600	100	5,500	80	4,000
Sterling, No. 1,	240	9,600	280	100	6,000	100	6,000	70	4,200	100	6,000
Sterling, No. 2,	220	8,800	210	100	4,500	100	4,500	70	3,150	80	3,600
Webster,	210	9,660	208	150	6,000	142	5,680	152	6,080	148	5,920
Webster,	205	9,225	202	190	7,980	180	7,560	185	7,770	195	8,190
Excelsior,	225	14,500	247	200	14,400	220	15,840	200	14,400	200	15,840
Goss Run,	200	13,104	192	230	11,181	260	12,856	260	11,800	256	15,150
Eureka,	160	11,614	168	. . .	. . .	. . .	. . .	180	5,150	185	5,266
Mapleton,	210	10,130	299	200	10,964	240	12,064	200	10,804	210	11,124
Rural Run,	70	3,536	75	20	1,512	25	1,652	80	3,192	50	2,352
Decatur,	30	2,304	55	50	2,688	50	2,688	100	4,288	35	2,208
Morrisdale,	90	6,096	90	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Glenwood,	200	7,000	193	120	3,120	135	3,510	130	3,390	135	3,510
St. Mary's,	205	12,853	203	205	11,424	203	11,328	206	11,472	205	11,424
Cascade,	190	7,980	150	140	4,480	150	4,800	160	5,120	160	5,120
Daguscahonda,	275	8,250	265	160	6,300	220	6,600	200	6,000	230	6,900
Daguscahonda,	250	3,750	270	210	4,200	275	2,625	275	4,125	250	3,750
Daguscahonda,	150	4,500	149	150	4,650	157	4,725	150	4,500	150	4,500
Robertsdale,	450	13,500	420	425	12,750	390	11,700	450	13,500	465	13,950
Mooredale,	195	8,890	180	110	3,696	105	3,528	100	3,360	120	4,032
McIntyre,	120	12,199	120	. . .	. . .	. . .	. . .	. . .	. . .	170	6,556
Buttsville,	189	6,804	195	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Fall Brook,	230	6,900	227	180	4,320	190	4,560	175	4,200	185	4,440
Fall Brook,	260	9,100	263	175	4,550	185	4,810	180	4,680	175	4,550
Antrim,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Antrim,	495	16,335	490	300	7,500	305	7,625	295	7,375	300	7,500
Morris Run,	400	36,000	388	135	6,750	150	7,500	140	7,000	155	7,750
Morris Run,	390	50,700	387	140	5,600	150	6,000	155	6,200	160	6,400
Morris Run,	380	34,200	374	160	6,400	140	5,600	155	6,200	160	6,400

Collieries in the Third Bituminous Mine District of Pennsylvania—Continued.

Ventilation.												
		1st week.		2d week.		3d week.		4th week.				
Average velocity per minute for the month.	Outlet—size of—feet.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Average number of feet passing out per month.	Location.	
120	64	450	28,800	600	38,400	550	35,000	410	26,240	32,125	Barclay,	Bradford county.
155	72	255	18,360	240	17,280	375	27,000	330	23,760	21,600	do.	do.
200	64	230	14,720	200	12,800	400	25,600	350	22,400	18,880	do.	do.
175	36	240	8,640	240	8,640	280	10,080	300	10,800	9,540	do.	do.
. . .	54	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	.	Porterville,	Blair county.
155	352	75	26,400	62	20,575	60	18,000	63	21,060	25,000	Bennington,	do.
93	38	360	13,680	362	13,756	350	13,300	364	13,832	13,612	Johnstown,	Cambria county.
43	31	115	3,565	110	3,410	116	3,900	114	3,532	3,526	do.	do.
62	30	130	3,900	135	4,050	127	3,800	135	4,050	3,952	do.	do.
255	36	410	14,350	360	12,600	400	14,000	380	13,000	13,490	Lloydsville,	do.
136	41	225	9,450	240	10,080	235	8,990	220	9,180	9,895	Mt. Hope,	Cameron county.
298	44	260	11,440	320	14,080	330	14,520	340	14,960	13,778	Sobleski,	Clearfield county.
101	70	200	14,000	230	16,100	180	12,600	200	14,000	15,175	Sterling,	do.
94	50	200	10,000	230	11,500	220	11,000	180	9,000	10,375	do.	do.
95	45	300	16,500	200	9,000	280	12,600	300	16,500	13,400	do.	do.
148	25	650	17,500	630	17,110	660	17,820	700	18,900	17,820	Goss Run,	do.
187	30	500	15,000	480	14,400	490	14,700	540	16,200	15,075	do.	do.
210	36	550	19,800	550	19,980	550	19,800	555	19,980	19,865	do.	do.
258	36	340	13,312	350	13,800	350	13,662	363	14,111	13,705	do.	do.
179	26	.	. .	. . .	. .	330	9,362	320	9,101	9,236	Houtzdale,	do.
212	48	170	9,792	190	10,752	170	9,792	160	9,360	9,994	Mapleton,	do.
44	28	30	1,792	50	2,352	160	5,432	70	2,912	3,122	Rural Run,	do.
58	25	2,100	45	1,975	3,350	35	1,725	100	3,350	2,280	Decatur,	do.
. . .	18	100	2,460	120	2,826	110	2,666	110	2,656	2,656	Morrisdale,	do.
130	60	340	20,400	350	21,000	320	19,200	330	19,800	20,100	Glenwood,	do.
204	60	200	12,036	202	12,690	203	12,744	202	12,690	12,540	St. Mary's,	Elk county.
152	24	220	5,280	230	5,520	270	6,480	320	7,680	5,980	do.	do.
215	30	460	13,800	480	14,400	475	14,250	475	14,250	14,075	Daguscahonda,	Elk county.
271	15	310	4,650	3 5	4,725	300	4,500	300	4,500	4,610	do.	do.
152	. . .	. .	. . . .	. . .	. . . .	.	. . . .	. . .	. . .	. . . .	do.	do.
432	30	450	13,500	400	12,000	450	13,500	480	14,400	14,450	Robertsdale,	Huntingdon co.
308	30	205	6,150	200	6,000	210	6,300	215	6,450	6,225	Mooredale.	do.
170	42	. . .	. .	. .	. . . .	. . .	.	200	13,104	13,200	McIntyre,	Lycoming county.
. . .	36	283	10,188	290	10,440	297	13,692	270	10,320	12,120	Buttsville,	McKean county.
182	30	245	7,350	250	7,650	240	7,200	250	7,500	7,425	Fall Brook,	Tioga county.
178	60	340	20,400	325	19,500	345	20,700	335	20,100	20,175	do.	do.
. . .	35	790	27,650	780	27,300	775	27,125	790	27,650	27,431	Antrim,	do.
300	27	490	13,230	495	13,363	490	13,230	500	13,500	13,344	do.	do.
145	72	800	57,600	820	59,040	780	55,160	810	58,320	57,680	Morris Run,	do.
151	66	790	52,140	820	54,120	780	51,480	800	52,800	53,160	do.	do.
154	52	780	40,560	765	39,780	755	39,000	780	40,560	39,820	do.	do.

A STATEMENT *of the Names, Power, Capacity, and Ventilation in the* *vania, for the Month*

NAME OF COLLIERY.	NAME OF OPERATOR.	Character of coal—bituminous or semi-bituminous.	Slope.	Drift.	Shaft.	Fan.	Furnace.	Number of headings.	Pumps—how many.
Barclay,	Towanda Coal Company,	Semi-bitum.		1			1	3	2
Barclay,	do. do.	do.		1			1	2	
Barclay,	do. do.	do.		1			1	5	
Barclay,	do. do.	do.		1			1	3	
Porter,	Denniston, Porter & Co.,	do.			1		1	3	
Horse Shoe,	S. C. Baker,	Bituminous,		1			1		
Bennington Shaft,	Blair Iron and Coal Company,	Semi-bitum.			1	1		7	3
Rolling-Mill Mine,	Cambria Iron Company,	do.		1		1		6	
Conemaugh,	do. do.	do.		1			1	2	
Woodvale,	do. do.	do.		1			1	2	
Ben's Creek,	S. H. Smith,	do.		1				4	
Lloydsville Mine,	Bell's Gap Railroad Company,	do.		1		1			
Moshannon,	Moshannon Coal Company,	Bituminous,		1			1	1	
Penn,	Reakirt Bros. & Co.,	do.		1			1	2	
Sterling, No. 1,	Robert Hare Powell,	Semi-bitum.		1			1	7	
Sterling, No. 1,	do. do.	do.		1			1	8	
Sterling, No. 2,	do. do.	do.		1				7	
Excelsior,	Fisher Bros. & Miller,	do.		1			1		
Webster,	Webster Coal Company,	do.		1			1		
Webster,	do. do.	do.		1			1		
Goss Run,	Berwind, White & Co.,	do.		1			1	4	
Eureka,	do. do.	do.		1			1		
Mapleton,	do. do.	do.		1			1		
Decatur,	Decatur Coal Company,	Bituminous,		1			1	2	
Laurel Run,	Nuttall, Bacon & Co.,	do.		1			1	4	
Glenwood,	Coulter & Huff,	do.		1			1	4	
Sandy Lick,	Sandy Lick Coal Company,	do.		1			1	2	
Daguscahonda,	North-Western Mining & Ex. Co.	do.		1			1	7	
Daguscahonda,	do. do. do.	do.		1			1		
Daguscahonda,	do. do. do.	do.		1			1		
Robertsdale,	Rockhill Iron and Coal Co.,	Semi-bitum.		1			1	4	
Mooredale,	Reakirt Bros. & Co.,	do.		1			1	3	
McIntyre,	McIntyre Coal Company,	do.		1			1	8	
Buttsville,	J. E. Butts, junior,	Bituminous,		1					
Clermont,	Buffalo Coal Company,	do.		1			1		
Clermont,	do. do.	do.		1			1		
Antrim,	Fall Brook Coal Company,	Semi-bitum,		1			1		
Antrim,	do. do.	do.		1			1		
Fall Brook,	do. do.	do.		1			1	5	2
Fall Brook,	do. do.	do.		1			1	21	
Arnot,	Blossburg Coal Company,	do.		1			1		
Arnot,	do. do.	do.		1			1		
Arnot,	do. do.	do.		1			1		
Morris Run,	Morris Run Coal Mining Co.,	do.		1			1	5	
Morris Run,	do. do.	do.		1			1	8	
Morris Run,	do. do.	do.		1			1	13	

respective Collieries in the Third Bituminous Mine District of Pennsyl-of July, 1879

Number of engines.	Horse power.	Boilers—how many.	Number of miners—men.	Number of miners—boys.	Other persons.	Total number of persons.	Number of mules inside.	Number of mules outside.	Total production in tons.	VENTILATION.							
												1ST WEEK		2D WEEK.		3D WEEK.	
										Number of openings.	Inlet—size of—sq. feet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.
2	. .	2	250	61	74	385	60	7	. . . .	2							
. .	. .	. .	. . .	. . .	. . .	. . .	. . .	. .	. . . . .	2							
. .	. .	. .	. . .	. . .	. . .	. . .	. . .	. .	. . . . .	2	72	130	9,360	180	13,680	150	10,800
. .	. .	. .	. . .	. . .	. . .	. . .	. . .	. .	. . . .	2	68	170	11,560	150	10,200	160	10,800
1	20	2	39	11	27	77	11	4	3,359	2							
. .	. .	. .	10	6	3	19	2	1	1,000	2	48	300	14,400	275	13,200	290	13,600
3	120	7	117	22	41	180	20	1	7,335	2	140	164	23,050	145	20,350	172	24,000
. .	. .	. .	160	30	70	260	38	. .	11,737	2	90	92	8,280	95	8,550	98	8,820
. .	. .	. .	13	4	2	19	1	1	990	2	36	90	3,240	92	3,312	95	3,420
. .	. .	. .	26	4	3	33	2	1	1,143	2	35	112	3,920	114	3,990	115	4,025
. .	. .	. .	24	3	4	31	2	7	1,194	2							
1	. .	2	70	5	15	90	16	. .	5,146	2	36	260	9,100	270	9,450	360	12,600
. .	. .	. .	38	6	5	49	4	1	3,365	2	56	260	14,560	250	14,400	300	16,800
. .	. .	. .	40	5	8	53	4	2	2,600	2	48	80	3,840	85	4,060	83	3,984
1	12	1	181	27	27	235	19	2	15,400	2	41	250	10,250	250	10,250	280	11,480
. .	. .	. .	. .	. . .	. . .	. . .	. . .	2	. . . .	. . .	40	250	10,000	280	11,200	300	12,020
. .	. .	. .	38	3	4	45	. . .	2	4,600	2	40	200	8,000	180	7,200	180	7,200
. .	. .	. .	140	15	20	175	11	6	12,000	2	64	330	21,120	335	21,440	330	21,120
. .	. .	. .	206	34	25	265	11	2	11,775	2	45	230	10,350	240	10,800	230	10,350
. .	. .	. .	. .	. .	. .	. .	. .	. .	.	2	46	250	11,500	270	12,420	260	11,960
. .	. .	. .	92	15	16	123	12	. .	7,191	2	56	200	13,104	190	12,560	185	12,289
. .	. .	. .	40	12	7	59	7	. .	3,481	2	60	160	11,614	180	12,768	175	12,480
. .	. .	. .	41	6	10	57	4	2	. .	2	42	90	5,334	90	5,334	110	6,132
. .	. .	. .	27	8	2	37	3	. .	2,991	2	36	35	2,487	20	1,944	25	2,124
. .	. .	. .	27	8	6	41	3	3	4,378	2	34	40	2,516	135	5,746	150	6,256
. .	. .	. .	14	3	2	19	2	. .	975	2	35	175	6,128	190	6,650	210	7,350
. .	. .	. .	50	5	7	62	6	2	3,500	2	42	225	9,450	225	9,450	250	10,500
1	30	2	130	20	3	153	6	2	9,904	2	30	205	6,150	190	5,700	205	6,150
. .	. .	. .	. .	. .	. .	. .	. .	. .	. . . .	2	15	260	3,900	265	3,975	260	3,900
. .	. .	. .	. .	. .	. .	. .	. .	. .	. . . .	2	15	345	3,175	340	5,100	350	5,250
. .	. .	. .	132	6	36	174	18	3	7,386	2	30	450	13,500	400	12,000	475	14,250
. .	. .	. .	37	5	4	46	2	. .	1,776	2	42	185	7,770	170	7,140	190	7,980
1	. .	1	80	10	11	101	4	. .	2,927	2	78	124	12,510	120	12,199	130	12,950
. .	. .	. .	46	5	23	74	10	2	2,365	2	36	205	7,380	208	7,488	213	7,668
. .	. .	. .	70	5	10	85	6	. .	4,503	2	30	158	9,480	175	10,500		
. .	. .	. .	60	6	7	73	6	. .	4,360	2	35	227	7,840	207	7,240	256	8,960
. .	. .	. .	307	30	120	457	28	. .	18,855	2							
. .	. .	. .	. .	. .	. .	. .	. .	. .	.	. .	33	495	16,335	490	16,170	488	16,104
. .	. .	. .	31	16	15	62	9	. .	2,675	2	30	230	6,900	215	6,450	225	6,750
. .	. .	. .	34	20	17	71	9	. .	3,235	2	35	245	8,975	240	8,400	255	8,920
. .	. .	. .	256	112	79	447	61	2	. . . .	2	42	805	33,810	751	31,542	716	29,032
. .	. .	. .	. .	. .	. .	. .	. .	. .	. . . .	2	40	454	18,160	393	15,720	474	18,960
. .	. .	. .	. .	. .	. .	. .	. .	. .	. . . .	2	65	430	27,950	411	26,715	411	26,715
2	40	2	73	35	25	133	16	. .	8,710	2	90	400	36,000	380	34,200	395	35,550
. .	. .	. .	56	36	25	117	15	. .	6,926	2	130	380	49,400	370	48,100	400	52,000
1	20	1	124	70	30	224	19	. .	11,248	2	90	365	32,850	380	34,200	375	33,759

A STATEMENT *of the Names, Power, Capacity, and Ventilation in the respective*

NAME OF COLLIERY.	VENTILATION.									
	4TH WEEK.			1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.	
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Average air current per month at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current per minute at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of herd'g.
Barclay,	. . .	. . .	. . .	200	9,600	160	7,680	150	7,200	160	7,680
Barclay,	. . .	. . .	. . .	210	8,400	200	8,000	300	12,000	240	6,900
Barclay,	230	16,560	175	170	6,800	150	6,000	200	8,000	230	9,200
Barclay,	170	11,560	162	330	13,200	330	13,200	300	12,000	200	8,000
Porter,	. . .	. . .	. . .	. .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Horse Shoe,	285	13,400	287	100	4,800	95	4,560	97	4,685	99	4,750
Bennington Shaft,	158	22,200	160	146	7,025	142	6,950	180	8,450	136	6,550
Rolling-Mill Mine,	96	8,640	95	90	4,500	93	4,650	93	4,650	95	4,750
Conemaugh,	96	3,456	93	44	1,760	40	1,600	44	1,760	45	1,800
Woodvale,	114	3,990	114	64	2,560	65	2,600	64	2,560	65	2,600
Ben's Creek,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Lloydsville Mine,	300	10,500	298	190	6,650	200	7,000	250	8,750	200	7,000
Moshannon,	270	15,120	270	280	11,200	275	11,000	280	11,200	250	10,000
Penn,	100	4,800	90	60	2,840	65	3,100	62	2,976	70	2,960
Sterling, No. 1,	265	10,665	261	100	6,000	120	7,200	100	6,000	90	5,400
Sterling, No. 1,	250	10,000	272	130	6,500	100	5,000	170	8,500	190	9,500
Sterling, No. 2,	220	8,800	195	100	6,000	100	6,000	80	4,800	100	6,000
Excelsior,	335	21,440	332	230	16,560	235	16,920	230	16,560	235	16,920
Webster,	250	11,250	238	200	8,400	190	7,800	210	8,820	200	8,400
Webster,	240	11,040	255	150	6,000	170	6,800	160	6,400	180	7,200
Goss Run,	200	13,104	193	260	12,856	250	12,430	260	12,856	260	12,856
Eureka,	190	13,345	176	180	5,150	200	5,616	195	5,499	200	5,516
Mapleton,	100	5,754	100	160	9,400	180	9,192	160	9,600	170	8,832
Decatur,	65	3,319	30	20	3,050	20	3,250	18	2,600	26	2,890
Laurel Run,	60	3,196	96	10	1,232	50	2,352	60	2,632	10	1,232
Glenwood,	200	7,000	193	120	3,120	135	3,510	130	3,390	135	3,510
Sandy Lick,	25	10,500	230	225	9,450	225	9,450	250	10,500	250	10,500
Daguscahonda,	200	6,000	200	275	5,500	270	5,400	270	5,400	270	5,400
Daguscahonda,	280	4,200	266	300	6,000	300	6,000	305	6,100	305	6,100
Daguscahonda,	335	5,325	347	350	5,250	355	5,325	345	5,175	340	5,100
Robertsdale,	450	13,500	444	425	12,750	375	11,250	450	13,500	425	12,750
Mooredale,	195	8,190	185	150	5,040	140	4,704	135	4,536	130	4,368
McIntyre,	127	12,728	125	175	6,711	170	6,556	180	6,848	177	6,774
Buttsville,	208	7,488	208	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Clermont,	160	9,600	168	404	8,888	354	7,799	. . .	. . .	300	6,600
Clermont,	207	7,240	241	110	5,280	104	4,992	125	6,000	98	4,704
Antrim,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Antrim,	490	16,170	490	295	3,775	300	7,500	290	7,250	295	7,375
Fall Brook,	235	7,050	226	195	4,680	185	4,440	190	4,560	200	4,800
Fall Brook,	250	8,745	247	180	4,680	175	4,550	195	5,070	190	4,940
Arnot,	823	34,556	798	393	12,576	358	11,456	340	10,880	358	11,456
Arnot,	464	18,560	445	186	7,440	214	8,560	268	10,720	196	7,840
Arnot,	401	26,065	413	644	15,456	554	13,296	537	12,888	515	12,360
Morris Run,	400	36,000	394	140	7,000	130	6,500	150	7,500	150	7,500
Morris Run,	395	51,480	387	130	5,200	150	6,000	160	6,400	150	6,000
Morris Run,	370	33,300	371	150	6,000	160	6,400	155	6,200	150	6,000

Collieries in the Third Bituminous Mine District of Pennsylvania—Continued.

VENTILATION.											
		1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.			
Average velocity per minute for the month.	Outlet—size of—sq. feet.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Average number of feet passing out per month.	LOCATION.
167	64	600	38,400	400	25,600	350	22,400	350	22,400	27,200	Barclay, Bradford county.
237	98	350	34,300	330	32,340	360	35,280	380	37,240	34,790	do. do.
187	80	310	24,800	300	24,000	300	24,000	350	28,000	25,200	do. do.
290	36	320	11,520	300	10,800	320	11,520	310	11,160	11,300	do. do.
. .	. . .	. .	.	. . .	. . . .	. . .	. . .	. . .	. . . .	. . . .	Portervillc, Blair county.
95	40	400	16,000	400	16,000	390	15,600	375	14,900	15,100	Horse Shoe, do.
151	352	63	22,200	53	18,700	65	23,100	58	20,600	21,125	Bennington, do.
92	38	360	13,680	362	13,756	365	13,870	360	13,680	13,721	Johnstown, Cambria county.
43	31	110	3,410	112	3,472	114	3,534	115	3,565	3,495	do. do.
64	30	135	4,050	135	4,050	130	3,900	136	4,080	4,020	do. do.
. . .	. . .	.	. . . .	. . .	. . .	. . .	. . .	. . .	. . .	. . . .	Ben's Creek, do.
200	36	300	10,500	320	11,200	420	14,700	370	12,950	12,337	Lloydsville, do.
271	44	375	16,500	350	15,900	360	15,800	390	14,960	15,650	Sobieski, Clearfield county.
66	15	600	9,000	650	9,750	630	9,450	670	10,050	9,640	Houtzdale, do.
102	70	250	17,500	230	16,100	200	14,000	240	16,800	15,670	Sterling, do.
147	80	170	13,600	180	14,400	150	12,000	200	16,000	13,860	do. do.
95	45	200	9,000	170	7,650	200	9,000	180	8,100	8,620	do. do.
232	36	660	23,760	665	23,940	660	23,760	665	23,940	27,000	Goss Run, do.
200	30	530	15,900	520	15,600	540	12,200	500	15,000	15,775	do. do.
165	27	660	17,820	640	17,280	670	18,090	650	17,550	17,685	do. do.
257	36	340	13,312	350	13,662	355	13,836	360	14,011	13,775	do. do.
193	26	320	9,110	310	8,858	300	8,608	320	9,110	8,921	Houtzdale, do.
167	48	150	9,360	150	7,880	170	9,792	150	7,880	8,728	Mapleton, do.
23	42	65	2,475	30	1,600	50	2,100	25	1,775	1,912	Laurel Run, do.
35	28	80	3,192	140	4,872	170	5,712	80	3,192	4,242	do. do.
130	56	340	20,400	350	21,000	320	19,200	330	19,800	20,100	Glenwood, do.
230	. . .	225	9,450	250	10,500	225	9,450	250	10,500	10,000	Du Bois, do.
271	30	470	14,100	465	13,950	470	14,100	470	14,250	14,100	Daguscahonda, Elk county.
302	20	350	7,100	345	6,900	345	6,900	320	6,600	6,850	do. do.
347	30	470	14,100	465	13,950	470	14,100	470	14,250	14,100	do. do.
419	30	450	13,500	400	12,000	450	13,500	425	12,750	12,937	Robertsdale, Huntingdon co.
138	30	200	6,000	195	5,850	195	5,850	180	5,000	5,775	Mooredale, do.
175	42	207	13,484	200	13,104	204	13,340	210	13,647	13,393	McIntyre, Lycoming county.
. . .	36	290	10,440	299	10,764	317	11,410	293	10,548	10,867	Buttsville, McKean county.
360	40	266	10,640	305	12,200	. . .	. . .	256	10,240	11,060	Clermont, do.
120	30	207	6,624	240	7,680	198	6,336	207	6,824	6,866	do. do.
. . .	35	780	27,300	775	27,125	790	27,650	790	27,650	27,431	Antrim, Tioga county.
295	27	490	13,230	500	13,500	495	13,230	490	13,365	13,331	do. do.
192	30	255	7,650	235	7,050	245	7,350	260	7,800	7,462	Fall Brook, do.
185	60	325	19,500	300	18,000	360	21,600	340	20,400	19,875	do. do.
362	72	288	20,636	154	11,088	140	10,080	164	11,880	13,403	Arnot, do.
216	40	501	20,040	483	19,340	501	20,040	491	19,640	19,765	do. do.
550	70	411	28,770	394	27,580	275	26,250	393	27,510	27,527	do. do.
143	72	820	59,040	800	57,600	809	58,320	820	59,040	58,600	Morris Run, do.
148	66	790	52,140	780	51,480	810	53,460	800	52,800	52,750	do. do.
158	52	760	39,520	785	40,820	775	40,300	770	40,400	39,290	do. do.

A STATEMENT *of the Names, Power, Capacity, and Ventilation in the* *vania, for the Month*

NAME OF COLLIERY.	NAME OF OPERATOR.	Character of coal—bituminous or semi-bituminous.	Slope.	Drift.	Shaft.	Fan.	Furnace.	Number of headings.	Pumps—how many.
Barclay,	Barclay Coal Company,	Semi-bitum.		1			1	3	2
Barclay,	do. do.	do.		1			1	2	
Barclay,	do. do.	do.		1			1	6	
Barclay,	do. do.	do.		1			1	3	
Carbon Run,	Schraeder Coal Company,	do.		1			1		
Carbou Run,		do.		1			1		
Carbon Run,		do.		1			1		
Bennington Shaft,	Blair Iron and Coal Company,	do.			1	1		5	2
Rolling-Mill Miue,	Cambria Iron Company,	do.		1			1	9	
Conemaugh,	do. do.	do.		1			1	2	
Woodvale,	do. do.	do.		1			1	2	
Lloydsville Mine,	Bell's Gap Railroad Company,	do.		1		1			
Sonman,	W. H. Piper & Co.,	Bituminous,		1			1		
Benn's Creek,	S. H. Smith,	Semi-bitum.		1					
Snow Shoe,	Bellefonte & Snow Shoe R. R. Co.	Bitumiuous,		1			1		
Snow Shoe,	do. do.	do.		1			1		
Moshannon,	Moshannon Coal Company,	do.		1			1	1	
Sterling, No. 1,	R. H. Powell & Co.,	Semi-bitum.		1			1	9	
Sterling, No. 1,	do.	do.		1			1	7	
Sterling, No. 2,	do.	do.		1					
Franklin,	Kittanning Coal Company,	Bitumiuous,		1			1		
Penn,	Reakirt Brothers & Co.,	do.		1			1	2	
Beaver Run,	J. E. Leskie & Co.,	do.		1			1		
Eureka,	Berwind, White & Co.,	Semi-bitum.		1			1		
Goss Run,	do. do.	do.		1			1		
Mapleton,	do. do.	do.		1			1	3	
Ocean,	Whitehead & Co.,	Bituminous,		1			1	8	
Excelsior,	Fisher Brother & Miller,	do.		1			1	10	
Webster,	Webster Coal Company, Limited	do.		1			1		
Webster,	do. do.	do.		1			1		
Glenwood,	Coulter & Huff,	do.		1			1	4	
Laurel Run,	Nuttall, Bacon & Co.,	do.		1			1	6	
Decatur,	Decatur Coal Company,	do.		1			1		
St. Mary's,	St. Mary's Coal Company,	do.		1			1		
Cascade,	Kaul & Hall,	do.		1			1	8	
Daguscahonda,	N. W Miuing & Exchange Co.,	do.		1			1	3	
Daguscahonda,	do. do.	do.		1			1		
Daguscahonda,	do. do.	do.		1			1		
Mooredale,	Reakirt Brothers & Co.,	Semi-bitum.		1				4	
Robertsdale,	Rockhill Iron and Coal Company	do.		1			1	5	
Clermont,	Buffalo Coal Compauy,	Bituminous,		1			1		
Clermont,	do. do.	do.		1			1		
Buttsville,	J. E. Butts, junior,	do.		1					
McIntyre,	McIntyre Coal Company,	Semi-bitum.		1			1	12	
McIntyre,	do. do.	do.		1			1	9	
Antrim,	Fall Brook Coal Company,	do.		1			1		
Antrim,	do. do.	do.		1			1		
Fall Brook,	do. do.	do.		1			1	5	
Fall Brook,	do. do.	do.		1			1	21	2
Arnot,	Blossburg Coal Company,	do.		1			1	2	
Arnot,	do. do.	do.		1			1	3	
Arnot,	do. do.	do.		1			1	4	
Morris Run,	Morris Run Coal Mining Co.,	do.		1			1	5	
Morris Run,	do. do.	do.		1			1	8	
Morris Run,	do. do.	do.		1			1	13	

respective Collieries in the Third Bituminous Mine District of Pennsyl-
of August, 1879.

Number of engines.	Horse power.	Boilers—how many.	Number of miners—men.	Number of miners—bo .	Other persons.	Total number of persons.	Number of mules inside.	Number of mules outside.	Total production in tons.	VENTILATION.							
												1ST WEEK.		2D WEEK.		3D WEEK.	
										Number of openings.	Inlet—size of—feet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.
2	. .	2	250	61	74	385	60	7	. . .	2							
. .	. .	. .	. . .	. . .	. . .	. . .	. . .	. .	. . . .	2							
. .	. .	. .	. . .	. . .	. . .	. . .	. . .	. .	. . . .	2	72	240	11,280	200	14,400	230	16,550
. .	. .	. .	. . .	. . .	. . .	. . .	. . .	. .	. . . .	2	68	235	15,780	180	12,240	200	13,600
. .	. .	. .	130	32	28	190	17	5	10,000	2							
. .	. .	. .	. . .	. . .	. . .	. . .	. . .	. .	. . . .	2							
. .	. .	. .	. . .	. . .	. . .	. . .	. . .	. .	. . . .	2							
3	108	7	106	15	33	154	16	. .	5,676	2	140	158	22,150	171	24,000	147	20,570
. .	. .	. .	165	35	72	272	39	. .	12,461	2	90	95	8,550	98	8,820	92	8,280
. .	. .	. .	13	4	2	19	1	1	996	2	36	96	3,456	95	3,420	90	3,240
. .	. .	. .	26	4	3	33	2	1	1,560	2	35	151	4,920	114	3,990	115	4,020
1	. .	1	80	6	11	97	15	. .	. .	2	36	340	11,900	360	12,600	310	10,850
. .	. .	. .	40	6	5	50	6	1	2,600	2	50	168	8,401	180	8,302	180	8,610
. .	. .	. .	18	3	4	25	1	2	1,291	2							
. .	. .	. .	19	6	4	29	3	. .	1,037	3	33	379	12,525	389	12,843	379	12,523
. .	. .	. .	42	12	8	62	4	. .	3,923	2	48	292	14,028	282	13,560	272	13,094
. .	. .	. .	43	3	5	52	4	1	4,285	2	56	290	16,240	280	15,680	240	13,440
1	12	1	200	33	17	250	15	. .	18,457	2	90	140	12,600	170	15,300	120	10,800
. .	. .	. .	. . .	. . .	. . .	. . .	. . .	. .	. . . .	2	45	200	9,000	230	10,350	210	9,450
. .	. .	. .	46	5	5	56	4	. .	4,426	2	40	200	6,309	230	9,200	190	7,600
. .	. .	. .	168	55	12	235	16	.	. . .	. .	11	600	40,131	620	40,290	560	39,600
. .	. .	. .	35	5	5	45	4	2	2,600	2	40	60	2,400	72	2,880	90	3,600
. .	. .	. .	40	10	8	58	1	. .	3,139	2	47	270	11,340	260	10,940	270	11,340
. .	. .	. .	46	7	13	66	6	. .	3,100	2	59	160	11,614	175	12,480	195	13,000
. .	. .	. .	85	17	17	119	12	. .	6,059	2	56	190	12,560	200	13,140	170	12,158
. .	. .	. .	41	6	10	57	5	2	. . . .	2	42	160	8,190	170	8,568	140	7,350
. .	. .	. .	325	25	32	382	24	8	22,670	2	61	420	25,621	400	24,400	410	25,000
. .	. .	. .	140	12	8	160	9	6	11,000	2	64	340	21,760	345	22,080	332	21,888
. .	. .	. .	164	32	18	214	8	4	9,159	2	46	270	12,420	260	11,960	290	13,340
. .	. .	. .	. . .	. . .	. . .	. . .	. . .	. .	. . . .	. . .	45	25	11,250	240	10,860	270	12,150
. .	. .	. .	12	2	2	16	1	. .	800	2	30	175	5,250	185	5,550	160	4,800
. .	. .	. .	36	16	6	58	3	3	4,612	2	34	. . .	. . .	. . .	. .	250	9,656
. .	. .	. .	26	12	2	40	3	. .	2,949	2	36	. . .	. .	45	2,844	65	3,564
. .	. .	. .	60	20	8	88	2	4	6,200	2	54	206	12,906	204	12,768	205	12,852
1	. .	1	21	14	8	43	2	. .	2,150	2	42	170	7,140	190	7,980	180	7,560
. .	. .	. .	. . .	. . .	. . .	. . .	. . .	. .	. .	2	30	175	5,520	180	5,400	175	5,250
1	35	2	125	20	5	150	8	1	11,985	2	15	290	4,350	285	4,275	295	4,425
. .	. .	. .	. . .	. . .	. . .	. . .	. . .	. .	. . . .	2	15	175	2,625	170	2,550	170	2,550
. .	. .	. .	31	4	2	37	2	. .	1,566	2	42	142	5,140	135	5,670	155	6,510
. .	. .	. .	175	12	10	197	18	3	5,309	2	30	400	12,000	375	11,250	450	13,500
. .	. .	. .	75	. . .	9	84	6	. .	4,087	2	30	147	8,820	158	7,000	140	8,400
. .	. .	. .	60	. . .	9	69	3	. .	3,968	2	35	207	7,245	200	9,220	188	6,580
. .	. .	. .	46	6	22	74	10	2	2,326	2	36	197	7,092	203	7,308	200	7,400
. .	. .	. .	60	.	8	68	6	1	7,520	2	48	160	9,369	140	8,438	147	8,764
1	. .	1	86	20	15	121	6	. .	.	2	78	135	13,334	140	13,710	145	14,090
. .	. .	. .	307	30	121	458	28	. .	17,889	2							
. .	. .	. .	. . .	. . .	. . .	. . .	. . .	. .	. . . .	2	33	495	16,335	490	16,170	488	16,104
. .	. .	. .	33	17	17	67	10	. .	2,610	2	30	235	7,050	230	6,900	240	7,200
. .	. .	. .	31	20	17	68	9	. .	2,514	2	35	255	8,920	245	8,575	250	8,745
. .	. .	. .	258	111	80	449	62	1	. . .	2	42	716	29,072	823	34,566	823	34,566
. .	. .	. .	. . .	. . .	. . .	. . .	. . .	. .	. . . .	2	86	250	21,500	268	23,048	259	22,700
. .	. .	. .	. . .	. . .	. . .	. . .	. . .	. .	. . . .	2	65	393	25,545	402	26,180	393	25,745
2	40	2	73	35	25	133	16	. .	8,112	2	90	380	34,200	390	35,100	400	36,000
. .	. .	. .	56	36	25	117	15	. .	5,747	2	130	390	50,700	380	49,400	375	48,750
1	20	1	124	70	30	224	19	. .	9,863	2	90	400	36,000	390	35,100	375	33,750

A STATEMENT *of the Names, Power, Capacity, and Ventilation in the respective*

NAME OF COLLIERY.	VENTILATION.									
	4TH WEEK.			1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.	
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Average air current per month at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current per minute at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.
Barclay,	. . .	. .	. . .	200	6,000	150	7,200	160	7,680	209	12,000
Barclay,	. . .	. . .	. . .	160	6,400	160	6,400	150	6,000	160	6,400
Barclay,	200	1,400	217	260	10,400	200	8,000	180	7,600	250	10,000
Barclay,	200	14,400	217	200	8,000	220	8,800	210	8,400	220	8,800
Carbon Run,	. . .	. . .	. . .	159	2,146	149	2,011	159	2,146	169	2,281
Carbon Run,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Carbon Run,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Bennington Shaft,	137	19,200	153	136	6,540	142	6,836	130	6,260	125	6,000
Rolling-Mill Mine,	92	8,280	94	93	4,650	95	4,750	90	4,900	90	4,500
Conemaugh,	95	3,420	94	44	1,760	40	1,600	45	1,800	44	1,760
Woodvale,	112	3,920	114	65	2,600	64	2,560	65	2,600	62	2,480
Lloydsville Mine,	410	14,350	355	260	9,100	280	9,800	200	9,090	210	7,350
Sonman,	180	9,410	170	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Benn's Creek,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Snow Shoe,	389	12,845	396	369	11,094	379	11,285	389	11,672	398	11,967
Snow Shoe,	282	13,560	284	301	12,981	292	12,564	282	12,149	292	12,564
Moshannon,	300	16,800	277	300	12,600	310	13,200	230	9,660	310	13,020
Sterling, No. 1,	160	14,400	147	100	5,500	80	4,000	120	6,000	150	6,750
Sterling, No. 1,	200	9,000	210	130	6,500	110	5,500	130	6,500	120	6,000
Sterling, No. 2,	160	6,400	187	84	4,900	110	6,600	80	4,800	75	4,500
Franklin,	580	40,000	601	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Penn,	95	3,800	82	50	2,000	55	2,200	58	2,320	60	2,400
Beaver Run,	270	11,340	242	190	7,600	200	8,000	180	7,200	180	1,187
Eureka,	185	13,051	176	180	5,150	195	5,499	210	5,848	200	5,616
Goss Run,	185	12,289	198	250	12,430	260	12,489	260	12,856	260	12,856
Mapleton,	140	7,350	152	280	14,076	290	14,400	260	13,320	250	12,996
Ocean,	400	24,400	407	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Excelsior,	340	21,760	341	240	17,280	240	17,640	240	17,280	343	17,496
Webster,	300	13,800	280	170	6,800	190	7,600	200	8,000	180	7,200
Webster,	240	10,800	250	210	8,820	200	8,400	220	9,240	210	8,820
Glenwood,	190	5,700	177	90	2,160	95	2,280	120	2,280	110	2,640
Laurel Run,	210	8,296	240	. . .	. . .	. .	. .	160	9,312	180	10,272
Deeatur,	100	4,824	60	130	5,248	100	4,288	140	5,568	150	5,888
St. Mary's,	204	12,798	204	208	11,568	205	11,424	208	11,568	212	11,760
Caseade,	180	7,560	180	190	6,080	210	6,720	160	5,200	180	5,760
Daguscahonda,	170	5,500	175	350	5,250	350	5,250	350	5,250	300	4,500
Daguscahonda,	280	4,200	285	235	3,625	230	3,450	230	3,450	225	3,375
Daguscahonda,	175	2,625	170	175	2,625	170	2,550	170	2,550	175	2,625
Mooredale,	150	6,300	145	110	3,695	100	3,600	120	4,022	115	3,864
Robertsdale,	450	13,500	420	425	12,750	390	11,700	450	13,500	465	13,950
Clermont,	155	9,300	150	404	8,888	384	8,448	400	8,800	424	9,325
Clermont,	200	7,000	198	256	6,240	160	6,400	166	6,640	170	6,280
Buttsville,	196	7,056	199	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
McIntyre,	157	9,430	151	140	5,174	143	5,351	146	5,448	157	5,768
McIntyre,	143	13,939	140	163	6,339	150	5,936	170	6,556	160	6,246
Antrim,	490	16,170	490	290	7,250	295	3,775	300	7,500	280	7,000
Antrim,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Fall Brook,	230	6,900	233	205	4,920	215	5,160	200	4,800	210	5,040
Fall Brook,	255	8,920	251	190	4,940	180	4,680	185	4,810	195	5,070
Arnot,	802	33,684	791	375	11,900	411	13,152	358	11,466	375	11,900
Arnot,	286	24,596	240	332	7,192	200	6,200	211	6,572	214	6,634
Arnot,	411	26,719	349	537	12,888	225	12,600	483	11,592	495	12,370
Morris Run,	375	33,750	386	135	6,760	135	6,750	145	7,250	135	6,750
Morris Run,	390	50,700	384	135	5,400	150	6,000	155	6,200	160	6,400
Morris Run,	380	34,200	386	160	6,400	155	6,200	150	6,000	160	6,400

Collieries in the Third Bituminous Mine District of Pennsylvania—Continued.

VENTILATION.											
		1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.			
Average velocity per minute for the month.	Outlet—size of—sq. feet.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Average number of feet passing out per month.	WHERE LOCATED.
160	64	550	35,200	550	35,200	600	38,400	850	54,400	40,800	Barclay, Bradford county.
157	98	320	31,360	320	33,660	340	33,220	320	31,360	32,860	do. do.
225	80	430	34,200	400	32,000	400	32,000	400	32,000	32,600	do. do.
212	36	310	11,160	450	16,200	410	14,760	400	14,400	14,130	do. do.
. . .	31	429	13,515	409	18,000	399	20,000	399	12,680	12,883	Carbon Run, do.
. . .	50	199	9,950	189	9,450	169	8,450	199	9,950	9,450	do. do.
. . .	91	319	29,029	369	32,669	419	38,129	429	20,039	34,716	do. do.
133	352	55	19,200	59	20,570	51	18,000	48	16,900	18,667	Bennington, Blair county.
92	38	360	13,680	362	13,756	365	13,870	360	13,680	13,746	Johnstown, Cambria county.
45	31	114	3,534	112	3,472	110	4,300	112	3,472	3,472	do. do.
64	30	136	4,080	135	4,050	136	4,008	130	3,900	4,027	do. do.
237	36	390	1,365	410	14,350	350	12,250	460	16,000	14,087	Lloydsville, do.
. . .	28	240	7,310	230	7,810	238	9,102	280	9,002	8,680	Sonman, do.
. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	Ben's Creek, do.
384	34	398	13,562	398	13,562	408	13,892	408	13,892	13,727	Snow Shoe, Centre county.
281	41	311	12,575	301	12,377	292	11,980	311	12,775	12,479	do. do.
300	44	320	14,088	340	14,960	250	11,000	350	15,400	13,862	Sobleski, Clearfield county.
112	54	230	12,305	260	10,700	240	12,840	270	14,445	12,572	Sterling, do.
122	50	200	10,000	230	11,500	280	14,000	210	10,500	11,500	do. do.
86	45	210	9,450	200	9,000	230	10,350	190	8,550	9,337	do. do.
. .	. .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	Hontzdale, do.
54	15	600	9,000	620	9,300	700	10,500	700	10,500	9,860	do. do.
187	25	300	12,000	300	12,000	340	13,600	340	13,600	12,800	Beaver Run, do.
200	26	310	8,858	250	7,345	300	8,608	280	8,101	8,260	Hontzdale, do.
255	36	340	13,3.2	350	13,662	360	14,011	355	13,836	14,180	Goss Run, do.
270	48	270	14,448	280	14,928	260	14,016	260	14,016	14,352	Mapleton, do.
. .	45	580	26,100	519	26,550	600	27,000	580	26,100	26,437	Goss Run, do.
482	36	640	23,040	644	23,104	640	23,040	643	23,148	23,060	do. do.
185	27	680	18,360	660	17,820	700	18,900	710	19,170	18,562	do. do.
215	30	550	16,500	530	15,900	560	16,800	580	17,400	16,650	do. do.
103	30	200	6,000	225	6,750	230	6,900	230	6,900	6,637	Glenwood, do.
170	28	. . .	. . .	. . .	. .	240	5,672	200	6,552	6,100	Laurel Run, do.
130	25	130	4,100	100	3,350	150	4,600	200	5,850	4,475	Decatur, do.
208	54	206	12,906	212	13,230	215	13,392	210	13,122	13,162	St. Mary's, Elk county.
210	24	290	6,960	333	7,920	300	7,200	300	7,200	7,280	do. do.
350	30	475	14,250	470	14,100	473	14,190	470	14,100	14,340	Daguscahonda, Elk county.
230	20	350	7,000	370	7,400	340	6,800	360	7,200	7,008	do. do.
170	. .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	do. do.
113	30	180	5,400	160	4,800	190	5,790	170	5,100	5,250	Mooredale, Huntingdon co.
435	30	450	13,500	400	12,000	450	13,500	480	14,400	14,450	Robertsdale, do.
384	40	250	10,240	270	10,000	200	10,400	250	10,000	10,410	Clermont, McKean county.
189	32	207	6,624	220	7,040	260	6,400	188	6,016	6,520	do. do.
. . .	36	289	10,404	301	10,836	298	11,728	289	10,404	10,960	Buttsville, do.
146	25	175	10,078	170	9,835	177	10,161	200	11,232	10,326	McIntyre, Lycoming county.
160	42	230	14,743	237	15,113	244	15,494	240	15,236	15,154	do. do.
291	35	775	27,125	780	27,300	790	27,650	780	27,300	27,343	Antrim, Tioga county.
. . .	27	495	13,365	490	13,230	492	13,284	485	13,090	13,243	do. do.
207	40	260	7,800	255	7,650	260	7,800	245	7,350	7,650	Fall Brook, do.
187	60	310	18,600	280	16,800	325	19,500	315	18,900	18,450	do. do.
379	72	347	24,984	424	30,528	381	27,432	369	26,568	27,388	Aruot, do.
214	40	554	22,160	550	22,000	500	20,000	501	20,040	21,050	do. do.
510	70	375	26,250	384	25 880	365	25,550	384	26,880	26,390	do. do.
134	72	780	56,160	780	56,880	800	57,600	775	55,800	56,960	Morris Run, do.
150	66	790	52,140	780	51,480	775	51,150	800	52,880	52,490	do. do.
156	52	810	42,120	800	41,600	780	40,560	790	41,080	41,068	do. do.

A STATEMENT *of the Names, Power, Capacity, and Ventilation in the* *vania, for the Month*

NAME OF COLLIERY.	NAME OF OPERATOR.	Character of coal—bituminous or semi-bituminous.	Slope.	Drift.	Shaft.	Fan.	Furnace.	Number of headings.	Pumps—how many.
Barclay,	Towanda Coal Company,	Semi-bitum.		1			1	3	2
Barclay,	do. do.	do.		1			1	3	
Barclay,	do. do.	do.		1			1	6	
Barclay,	do. do.	do.		1			1	3	
Carbon Run,	Schraeder Coal Company,	do.		1			1		
Carbou Run,	do. do.	do.		1			1		
Carbon Run,	do. do.	do.		1			1		
Carbou Run,	do. do.	do.		1			1		
Porter,	Denniston, Porter & Co.,	do.			1		1	3	
Bennington Shaft,	Blair Iron and Coal Company,	do.			1	1		6	2
Rolling-Mill Mine,	Cambria Iron Company,	do.		1		1			
Conemaugh,	do. do.	do.		1			1		
Woodvale,	do. do.	do.		1			1		
Lloydsville,	Bell's Gap Railroad Company,	do.		1		1			
Ben's Creek,	S. H. Smith,	do.		1				4	
Mt. Hope,	Mt. Hope Coal Company,	Bituminous,		1			1	3	
Sterling, No. 1,	Robert Hare Powell & Co.,	Semi-bitum.		1			1	8	
Sterling, No. 1,	do. do.	do.		1			1	11	
Sterling, No. 2,	do. do.	do.		1					
Franklin,	Kittanning Coal Company,	Bituminous,		1			1		
Penn,	Reakirt, Brother & Co.,	do.		1			1		
Excelsior,	Fisher Brothers & Miller,	do.		1			1	10	
Eureka,	Berwind, White & Co.,	Semi-bitum.		1			1		
Goss Run,	do. do.	do.		1			1		
Mapleton,	do. do.	do.		1			1		
Glenwood,	Coulter & Huff,	Bituminous,		1			1	4	
Laurel Run,	Nuttall, Bacon & Co.,	do.		1			1	4	
Decatur,	Decatur Coal Company,	do.		1			1	3	
Sandy Lick,	Sandy Lick Coal Company,	do.		1			1	3	1
Daguscahonda,	N. W. Mining & Exchange Co.,	do.		1			1	4	
Daguscahonda,	do. do.	do.		1			1		
St. Mary's,	St. Mary's Coal Company,	do.		1			1		
Mooredale,	Reakirt Brothers & Co.,	Semi-bitum-		1				3	
Robertsdale,	Rock Hill Iron and Coal Co.,	do.		1			1	6	
McIntyre,	McIntyre Coal Company,	do.		1			1	10	
McIntyre,	do. do.	do.		1			1	9	
McIntyre,	do. do.	do.		1			1	8	
Clermont,	Buffalo Coal Company,	Bituminous,		1			1		
Clermont,	do. do.	do.		1			1		
Buttsville,	J. E. Butts, junior,	do.		1			1		
Antrim,	Fall Brook Coal Company,	Semi-bitum.		1			1		
Antrim,	do. do.	do.		1			1		
Fall Brook,	do. do.	do.		1			1	5	1
Fall Brook,	do. do.	do.		1			1	21	
Arnot,	Blossburg Coal Company,	do.		1			1		
Arnot,	do. do.	do.		1			1		
Arnot,	do. do.	do.		1			1		
Morris Run,	Morris Run Coal Mining Co.,	do.		1			1	5	
Morris Run,	do. do.	do.		1			1	8	
Morris Run,	do. do.	do.		1			1	13	1

respective Collieries in the Third Bituminous Mine District of Pennsyl-of September, 1879.

Number of engines.	Horse power.	Boilers—how many.	Number of miners—men.	Number of miners—boys.	Other persons.	Total number of persons.	Number of mules inside.	Number of mules outside.	Total production in tons.	VENTILATION.								
												1ST WEEK.		2D WEEK.		3D WEEK.	
										Number of openings.	Inlet—size of—sq. feet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.
2	. .	2	250	61	74	385	60	7	. . . .	2							
. .	. .	. .	. . .	. . .	. . .	. . .	. . .	.	. . . .	2	72	230	16,560	250	18,000	300	21,600
. .	. .	. .	. . .	. . .	. . .	. . .	. . .	.	. . . .	2	68	195	15,060	245	16,660	200	13,600
. .	. .	. .	130	32	28	190	17	5	11,000	2							
1	20	2	45	15	21	81	11	3	4,030	2	40	300	12,000	330	13,200	260	10,400
3	. .	7	102	15	42	159	16	1	6,830	2	140	205	28,830	188	26,404	174	24,000
. .	. .	. .	160	30	75	265	39	. .	13,262	2	90	90	8,100	95	8,550	92	8,230
. .	. .	. .	13	3	2	18	1	1	1,100	2	36	95	3,420	96	3,456	95	3,420
. .	. .	. .	24	4	3	31	2	1	1,186	2	35	114	3,990	112	3,920	115	4,025
1	.	2	75	7	12	94	12	5	. . .	2	36	300	10,500	280	9,800	300	10,500
. .	. .	. .	29	3	5	37	2	2	1,586	2							
. .	. .	. .	50	6	9	65	5	1	3,000	2	41	200	10,425	190	9,505	210	10,947
1	12	1	83	9	9	101	8	. .	18,250	2	78	240	18,720	200	15,600	220	17,160
. .	. .	. .	110	15	11	136	9	. .	. . .	2	45	310	13,950	310	13,950	330	14,850
. .	. .	. .	44	5	11	60	5	. .	5,312	2	40	200	8,000	770	6,800	150	6,000
1	10	1	115	21	39	175	16	2	10,170	2	42	715	30,030	620	26,040	425	17,850
. .	. .	. .	35	5	7	47	3	2	2,290	2	48	100	4,800	105	5,020	100	4,800
. .	. .	. .	140	12	8	160	14	8	11,000	2	64	340	21,760	342	21,928	340	21,760
. .	. .	. .	46	9	10	65	7	. .	4,079	2	56	175	12,480	200	13,923	160	11,614
. .	. .	. .	87	14	12	113	12	. .	6,605	2	60	195	12,832	200	13,104	190	12,560
. .	. .	. .	40	6	12	58	5	2	. . .	2	42	150	7,770	140	7,350	150	6,972
. .	. .	. .	20	2	2	24	1	1	1,600	2	30	175	5,250	185	5,550	160	4,800
. .	. .	. .	36	16	5	57	3	3	5,018	2	34	300	11,356	280	10,676	270	10,336
. .	. .	. .	27	14	4	45	4	. .	3,116	2	36	70	3,744	60	3,380	100	4,824
1	. .	1	50	4	7	61	6	2	. . .	2	42	225	9,450	250	10,500	225	9,450
1	30	2	140	10	3	153	9	1	9,965	2	30	220	6,600	250	5,750	245	7,350
. .	. .	. .	. . .	. . .	. . .	. . .	. . .	. .	. . .	2	30	195	5,850	175	5,250	180	5,400
. .	. .	. .	60	20	10	90	2	4	5,800	2	54	206	11,296	204	12,798	210	13,120
. .	. .	. .	26	3	4	33	2	2	1,623	2	42	160	6,720	150	6,300	155	6,510
. .	. .	. .	143	12	14	169	18	2	8,869	2	30	420	12,600	400	12,600	450	13,500
1	. .	1	33	2	11	46	6	2	12,580	2	30	207	7,223	215	7,456	203	7,107
. .	. .	. .	100	5	25	130	15	2	. . . .	2	48	227	12,489	217	12,113	230	12,628
. .	. .	. .	115	8	19	142	6	. .	. . .	2	78	150	14,469	142	13,863	160	15,225
. .	. .	. .	70	6	8	84	6	.	4,387	2							
. .	. .	. .	60	7	8	75	4	. .	3,288	2							
. .	. .	. .	42	6	20	68	10	2	2,426	2	36	199	7,164	203	7,308	200	7,200
. .	. .	. .	225	32	121	378	30	. .	19,382	2							
. .	. .	. .	. .	. . .	. . .	. .	. . .	. .	. . . .	2	33	490	16,170	480	15,840	490	13,230
. .	. .	.	33	16	17	66	11	. .	4,191	2	30	240	7,200	250	7,500	245	7,350
. .	. .	. .	31	14	15	60	7	. .	4,801	2	35	220	7,700	225	7,875	215	7,525
. .	. .	. .	254	108	79	441	62	1	. . . .	2	42	716	30,072	751	31,542	698	29,316
. .	. .	. .	. . .	. . .	. .	. . .	. . .	. .	. . . .	2	86	241	20,726	214	18,404	250	21,500
. .	. .	. .	. . .	. . .	. . .	. . .	. . .	. .	. . . .	2	65	420	27,300	411	26,716	429	27,885
2	40	2	74	35	25	134	16	. .	7,856	2	90	390	35,100	380	34,200	395	35,550
. .	. .	. .	53	32	24	109	15	. .	5,784	2	130	395	51,350	385	50,500	390	50,700
1	20	1	125	70	30	225	19	. .	11,295	2	90	390	35,100	400	36,000	380	34,200

A STATEMENT *of the Names, Power, Capacity, and Ventilation in the respective*

NAME OF COLLIERY.	VENTILATION.									
	4TH WEEK.			1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.	
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Average air current per month at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current per minute at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.
Barclay,	. . .	. . . .	. . .	140	9,520	250	12,000	200	9,640	210	10,080
Barclay,	. . .	. . . .	. . .	100	6,400	200	8,000	170	6,800	150	6,000
Barclay,	250	18,000	257	290	11,600	300	12,000	310	12,400	240	9,600
Barclay,	200	13,600	210	160	6,400	160	6,400	200	8,000	210	8,400
Carbon Run,	. . .	. . . .	. . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .
Carbon Run,	. . .	. . . .	. . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .
Carbon Run,	. . .	. . . .	. . .	79	1,066	89	1,201	69	931	50	796
Carbon Run,	. . .	. . . .	. . .	109	1,199	119	1,309	89	979	99	1,080
Porter,	290	11,660	306	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .
Bennington Shaft,	159	22,152	181	158	7,584	154	7,400	121	6,817	136	6,505
Rolling-Mill Mine,	93	8,820	93	92	4,600	96	4,800	93	4,650	95	4,750
Conemaugh,	96	3,456	95	43	1,720	45	1,800	40	1,600	45	1,800
Woodvale,	115	4,025	114	64	2,560	62	2,480	65	2,600	64	2,000
Lloydsville,	230	8,050	277	230	8,050	200	7,000	220	7,700	190	6,660
Ben's Creek,	. . .	. . . .	. . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .
Mount Hope,	195	10,164	199	155	3,875	150	3,750	165	4,125	155	3,875
Sterling, No. 1,	210	16,380	217	100	7,500	120	7,800	180	11.700	120	7,800
Sterling, No. 1,	280	13,050	310	70	5,600	110	8,800	90	7,200	135	10,800
Sterling, No. 2,	210	8,400	182	110	4,400	170	6,800	100	4,000	200	8,000
Franklin,	625	26,040	595	360	14,400	325	13,000	280	11,200	300	13,200
Penn,	120	5,760	114	80	2,800	80	2,800	85	2,975	92	3,220
Excelsior,	342	21,928	341	240	17,480	244	17,560	246	17,712	240	17,480
Eureka,	175	12,480	189	195	5,499	190	5,383	180	5,515	185	5,266
Goss Run,	200	13,104	196	230	11,811	250	12,430	250	12,430	260	12,856
Mapleton,	150	7,770	141	150	7,770	140	7,350	130	6,972	150	7,770
Glenwood,	190	5,700	177	90	2,160	95	2,280	120	2,880	110	2,640
Laurel Run,	150	6,256	250	75	5,232	100	6,432	200	11,232	160	9,312
Decatur,	80	4,104	773	70	3,328	100	4,288	150	5,888	66	3,200
Sandy Lick,	250	1,050	229	225	9,450	250	9,450	225	9,450	250	10,500
Daguscahonda,	245	7,350	243	290	5,800	300	6,000	290	5,800	290	5,800
Daguscahonda,	175	5,250	182	335	5,025	350	5,250	275	5,500	350	5,250
St. Mary's,	206	12,906	206	208	11,563	206	11,472	205	11,424	212	11,760
Mooredale,	165	6,930	155	140	5,880	135	5,670	140	5,880	145	6,090
Robertsdale,	400	12,000	418	400	12,000	390	11,700	400	12,000	390	11,700
McIntyre,	200	7,020	206	140	5,274	160	5,756	170	6,147	150	5,565
McIntyre,	220	12,263	223	209	5,681	197	7,376	220	8,114	190	7,177
McIntyre,	155	14,847	151	165	7,898	157	6,051	170	6,556	175	6,712
Clermont,	.	. . . .	356	332	7,375	250	8,400	400	8,800	. . . .	. . . .
Clermont,	. . .	. . . .	208	320	8,220	300	8,200	200	8,200	200	10,000
Buttsville,	194	6,984	199	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .
Antrim,	. . .	. . .	. . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .
Antrim,	480	15,840	485	290	7,250	300	7,500	280	7,000	280	7,000
Fall Brook,	255	7,650	247	240	7,200	250	7,500	245	7,350	255	7,650
Fall Brook,	220	7,700	220	220	7,700	225	7,875	215	7,525	220	7,700
Arnot,	658	26,292	697	600	19,200	537	17,184	393	12,576	358	11,456
Arnot,	240	24,576	228	160	6,720	161	6,762	196	8,232	214	8,988
Arnot,	590	27,300	580	537	12,888	519	12,456	562	13,488	590	14,160
Morris Run,	390	35,300	380	140	7,000	135	6,750	145	7,250	140	7,000
Morris Run,	380	49,400	388	140	5,600	135	5,400	155	6,200	150	6,000
Morris Run,	395	35,980	391	155	6,200	160	6,400	145	5,800	160	6,600

Collieries in the Third Bituminous Mine District of Pennsylvania—Continued.

Ventilation.											
		1st week.		2d week.		3d week.		4th week.			
Average velocity per minute for the month	Outlet—size of—sq. feet.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet	Number of cubic feet per minute passing out.	Average number of feet passing out per month.	Location.
200	64	600	38,400	750	48,000	800	51,200	550	35,200	43,200	Barclay, Bradford county.
170	98	275	26,950	390	38,200	340	33,320	320	31,360	32,457	do. do.
285	80	420	33,600	400	32,000	500	40,000	400	32,000	34,400	do. do.
182	36	400	14,700	410	14,760	400	14,400	380	13,680	14,400	do. do.
. . .	32	419	13,198	449	14,143	479	15,088	459	14,458	14,222	Carbon Run, do.
. . .	50	189	9,450	209	10,450	189	9,450	209	10,450	9,950	do. do.
. . .	91	319	29,029	309	28,119	309	28,119	249	22,659	26,981	do. do.
. . .	30	259	7,770	299	8,970	309	9,270	299	8,970	8,745	do. do.
. . .	. . .	. .	. . .	. .	. . .	. . .	. . .	. . .	. . .	. . .	Porterville, Blair county.
142	352	68	24,000	64	22,554	55	19,300	58	20,513	21,607	Bennington, do.
94	30	362	13,756	365	13,870	365	13,870	362	13,756	13,813	Johnstown, Cambria county.
43	31	113	3,503	115	3,165	140	3,534	115	3,565	3,541	do. do.
63	30	135	4,050	130	3,900	136	4,080	135	4,050	4,020	do. do.
210	36	350	11,250	240	11,900	260	9,100	300	10,500	11,301	Lloydsville, do.
. . .	. . .	.	. . .	. . .	. .	. . .	. . .	. . .	. . .	. .	Ben's Creek, do.
156	30	225	9,450	240	10,080	235	9,870	220	9,180	9,895	Cameron, Cameron county.
130	60	300	18,000	300	19,200	300	18,000	270	16,200	17,850	Sterling, Clearfield county.
110	80	210	16,800	190	15,200	180	14,400	220	17,600	16,000	do. do.
145	45	200	9,000	200	9,000	180	8,100	193	9,550	8,912	do. do.
323	. .	500	33,000	450	29,700	300	19,800	450	29,700	30,160	Houtzdale, do.
87	15	700	10,500	650	9,750	710	11,200	705	10,700	10,490	do. do.
262	36	640	23,040	642	23,112	640	23,040	642	23,112	23,076	Goss Run, do.
186	26	275	7,975	260	7,597	320	9,110	300	8,608	8,001	Houtzdale, do.
247	36	230	12,963	350	13,662	360	13,662	355	13,836	12,980	Goss Run, do.
149	48	250	13,936	230	12,384	220	12,144	240	13,056	12,780	Mapleton, do.
103	30	200	6,000	225	6,750	230	6,900	230	6,900	6,637	Glenwood, do.
133	28	200	6,552	210	6,832	300	9,352	260	8,232	7,742	Laurel Run, do.
96	25	120	3,850	100	3,350	160	4,850	100	3,350	3,850	Decatur, do.
242	42	225	9,450	250	10,500	225	9,450	250	10,500	9,975	Du Bois, do.
293	30	470	14,100	475	14,250	470	14,100	473	14,190	14,210	Daguscahonda, Elk county.
326	20	360	7,200	340	6,800	335	6,700	340	6,800	7,112	do. do.
207	54	210	13,122	212	13,233	206	12,906	210	13,122	13,095	St. Mary's, do.
140	30	170	4,080	160	3,840	175	4,188	180	4,320	4,107	Mooredale, Huntingdon co.
395	30	400	12,000	400	12,000	450	13,500	460	13,800	12,825	Robertsdale, do.
158	20	209	10,194	213	10,357	195	9,624	200	9,828	10,000	McIntyre, Lycoming county.
204	23	257	13,368	245	13,327	254	13,506	240	13,094	13,323	do. do.
166	42	247	15,657	238	15,168	264	16,363	250	15,808	15,749	do. do.
384	40	260	10,400	294	11,760	258	10,320	306	12,320	11,200	Clermont, McKean county.
268	32	188	6,016	206	7,000	175	5,600	200	6,400	6,101	do. do.
. . .	36	285	10,260	291	10,476	295	6,789	289	10,404	9,675	Buttsville, do.
. . .	35	780	27,300	775	27,125	765	26,775	760	26,600	26,950	Antrim, Tioga county.
287	27	485	13,095	490	13,230	495	13,365	480	12,960	13,162	do. do.
247	30	270	8,250	285	8,550	270	8,100	290	8,700	8,400	Fall Brook, do.
220	60	320	19,200	335	20,100	325	19,500	335	20,100	19,725	do. do.
472	72	278	20,016	313	22,536	265	19,080	236	16,992	19,658	Arnot, do.
182	40	501	20,040	537	21,480	537	21,480	551	22,160	21,290	do. do.
552	70	341	26,880	393	27,510	411	28,770	393	27,510	27,662	do. do.
140	72	795	57,240	790	56,880	800	57,600	790	56,880	56,780	Morris Run, do.
145	66	800	52,800	790	52,140	795	52,470	790	52,140	52,640	do. do.
150	52	800	41,600	800	42,120	795	41,340	805	41,860	41,674	do. do.

A STATEMENT *of the Names, Power, Capacity, and Ventilation in the* *vania, for the Month*

NAME OF COLLIERY.	NAME OF OPERATOR.	Character of coal—bituminous or semi-bituminous.	Slope.	Drift.	Shaft.	Fan.	Furnace.	Number of headings.	Pumps—how many.
Barclay,	Towanda Coal Company,	Semi-bitum.		1			1	3	2
Barclay,	do. do.	do.		1			1	3	
Barclay,	do. do.	do.		1			1	6	
Barclay,	do. do.	do.		1			1	3	
Carbon Run,	Schraeder Coal Company,	do.		1			1		
Carbon Run,	do. do.	do.		1			1		
Carbon Run,	do. do.	do.		1			1		
Carbon Run,	do. do.	do.		1			1		
Porter,	Denniston, Porter & Co.,	do.			1			3	
Bennington Shaft,	Blair Iron and Coal Company,	do.			1	1		8	2
Rolling-Mill Mine,	Cambria Iron Company,	do.		1		1		6	
Gautier Coal Mine,	do. do.	do.		1			1		
Conemaugh Furn. Mine,	do. do.	do.		1			1	2	
Woodvale Mine,	do. do.	do.		1			1		
Sonman,	W. H. Piper & Co.,	do.		1			1		
Lloydsville Mine,	Bell's Gap Railroad Company,	do.		1		1			
Benn's Creek Mine,	S. H. Smith,	do.		1				4	
Mount Hope,	Mount Hope Coal Company,	Bituminous,		1			1		
Snow Shoe,	Bellefonte & Snow Shoe R. R. Co.	do.		1					2
Snow Shoe,	do. do. do.	do.		1					
Sterling, No. 1,	Robert H. Powell & Co.,	Semi-bitum.		1			1	10	
Sterling, No. 1,	do.	do.		1			1	11	
Sterling, No. 2,	do.	do.		1				10	
Penn,	Reakirt Brother & Co.,	Bituminous,		1			1	2	
Moshannon,	Moshannon Coal Company,	do.		1			1	1	
Beaver Run,	J. E. Leskie & Co.,	do.		1			1		
Kittanning,	Kittanning Coal Company,	do.		1			1	12	
Eureka,	Berwind, White & Co.,	Semi-bitum.		1			1		
Goss Run,	do.	do.		1			1		
Mapleton,	do.	do.		1			1		
Webster,	J. C. Scott & Sons,	do.		1			1	10	
Webster,	do.	do.		1			1		
Excelsior,	Fisher Brothers & Miller,	Bituminous,		1			1	12	
Morrisdale,	R. B. Wigton,	do.		1			1		
Glenwood,	Coulter & Huff,	do.		1			1	5	
Laurel Run,	Nuttall, Bacon & Co.,	do.		1			1	6	
Decatur,	Decatur Coal Company,	do.		1			1	2	
Daguscahonda,	N. W. Mining and Exchange Co.	do.		1			1	4	
Daguscahonda,	do. do.	do.		1			1		
Mooredale,	Reakirt Brothers & Co.,	Semi-bitum.		1				3	
McIntyre,	McIntyre Coal Company,	do.		1			1	10	
McIntyre,	do. do.	do.		1			1	9	
McIntyre,	do. do.	do.		1			1	8	
Buttsville,	J. E. Butts,	Bituminous,		1					
Clermont,	Buffalo Coal Company,	do.		1			1		
Clermont,	do. do.	do.		1			1		
Antrim,	Fall Brook Coal Company,	Semi-bitum.		1			1		
Antrim,	do. do.	do.		1			1		
Fall Brook,	do. do.	do.		1			1	5	1
Fall Brook,	do. do.	do.		1			1	21	
Arnot,	Blossburg Coal Company,	do.		1			1	2	
Arnot,	do. do.	do.		1			1	3	
Arnot,	do. do.	do.		1			1	4	
Morris Run,	Morris Run Coal Mining Co.,	do.		1			1	5	
Morris Run,	do. do.	do.		1			1	8	
Morris Run,	do. do.	do.		1			1	13	1

respective Colleries in the Third Bituminous Mine District of Pennsyl-
of October, 1879.

Number of engines.	Horse power.	Boilers—how many.	Number of miners—men.	Number of miners—boys.	Other persons.	Total number of persons.	Number of mules inside.	Number of mules outside.	Total production in tons.	Ventilation.							
												1st week.		2d week.		3d week.	
										Number of openings.	Inlet—size of—feet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.
2	. .	2	248	61	74	383	60	7	. . .	2							
. .	. .	. .	. . .	. . .	. .	. .	. .	. .	. . .	2							
. .	. .	. .	. . .	. . .	. .	. .	. .	. .	. . .	2	72	240	17,280	280	20,160	280	20,160
. .	. .	. .	128	30	28	186	17	6	12,000	2	68	210	14,280	210	14,280	230	15,640
. .	. .	. .	. . .	. . .	. .	. .	. .	. .	. . .	2							
. .	. .	. .	. . .	. . .	. .	. .	. .	. .	. . .	2							
. .	. .	. .	. . .	. . .	. .	. .	. .	. .	. .	2							
1	20	2	40	20	26	86	12	3	4,185	2							
3	120	7	108	19	41	168	22	1	9,080	2	146	157	22,000	170	23,800	186	26,000
. .	. .	. .	165	25	70	260	40	. .	14,761	2	90	90	8,100	90	8,100	95	8,550
. .	. .	. .	15	5	2	22	1		1,324	2	35	65	2,275	70	2,450	70	2,380
. .	. .	. .	20	4	2	26	2	2	1,755	2	36	90	3,240	95	3,420	96	3,456
. .	. .	. .	24	4	3	31	2	1	1,760	2	35	114	3,990	113	3,955	115	4,020
. .	. .	. .	60	10	8	78	6	2	3,000	2	54	180	9,501	202	9,601	210	9,502
1	. .	1	80	5	14	99	13	. .		2	36	250	8,750	350	12,600	350	10,500
. .	. .	. .	30	6	7	43	3	2	1,784	2							
. .	. .	. .	50	6	8	64	5		3,500	2	42	200	10,425	190	9,903	209	10,747
2	. .	. .	25	7	5	37	4	. .	1,191	2	33	359	12,845	398	13,163	408	13,483
3	. .	. .	46	12	9	67	5	. .	3,810	2	48	311	14,956	321	15,422	331	15,888
1	12	1	110	9	18	137	9	. .	21,930	2	100	200	20,000	180	18,000	180	18,000
. .	. .	. .	120	6	15	141	10	. .	. .	2	60	210	12,600	240	14,400	190	11,450
. .	. .	. .	82	2	9	93	6	. .	7,198	2	45	250	11,250	280	12,600	250	12,250
. .	. .	. .	40	5	5	50	4	2	2,839	2	48	80	3,840	70	3,360	70	3,360
. .	. .	. .	78	9	8	95	6	3	6,525	2	56	290	16,240	280	15,680	260	14,560
. .	. .	. .	50	18	13	81	4	1	5,369	2	42	220	9,900	230	10,350	220	9,900
1	. .	1	126	21	41	188	20	. .	11,449	2	42	395	24,990	585	24,570	615	25,830
. .	. .	. .	36	10	11	57	7	. .	4,805	2	60	170	12,191	160	11,614	180	12,768
. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	2	56	200	13,104	190	12,563	200	13,104
. .	. .	. .	41	5	10	56	5	3		2	42	130	6,972	120	6,552	130	6,572
. .	. .	. .	115	31	7	153	13		9,564	2	43	270	12,420	260	11,960	290	13,340
. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	2	45	250	11,250	240	10,800	270	12,150
. .	. .	. .	150	13	14	177	10	8	14,000	2	64	250	16,000	254	16,256	252	16,128
. .	. .	. .	92	21	14	127	7	4	. .	2	52	110	7,464	120	8,164	90	6,604
. .	. .	. .	34	2	6	42	2	1	5,100	2	35	175	6,125	190	6,650	210	7,350
. .	. .	. .	43	16	6	65	4	3	6,113	2	34	250	9,656	200	7,656	250	9,556
. .	. .	. .	34	14	4	52	4	. .	4,460	2	36	100	4,824	75	3,924	70	3,744
1	30	2	145	10	3	158	9	1	10,793	2	45	350	9,000	398	9,075	385	8,850
. .	. .	. .	. . .	. . .	. .	. .	. .	. .	. . .	. .	45	475	9,975	475	10,050	480	10,070
. .	. .	. .	26	5	4	35	. .	. .	1,372	2	42	185	7,770	190	7,980	200	8,400
1	. .	1	30	2	12	44	4	1	15,681	2	30	198	6,960	205	7,165	190	6,849
. .	. .	. .	90	6	27	123	16	3	. . . .	2	48	240	13,091	198	11,129	193	10,900
. .	. .	. .	124	7	14	145	6	. .	. . .	2	78	145	14,090	153	14,695	158	15,089
. .	. .	. .	40	6	20	66	10	2	2,377	2	36	205	7,380	217	7,452	213	7,668
. .	. .	. .	70	5	7	82	6	2	3,987	2							
. .	. .	. .	50	10	7	67	5	2	3,666	2							
.	. .	. .	315	32	121	468	30	. .	20,791	2							
. .	. .	. .	. . .	. . .	. .	. .	. .	. .	. .	2	32	490	16,170	480	15,840	270	8,910
. .	. .	. .	44	17	18	79	12	. .	5,619	2	30	260	7,800	250	7,500	265	7,950
. .	. .	. .	41	18	18	77	11	. .	7,226	2	35	250	8,750	200	7,925	245	8,975
. .	. .	. .	256	104	75	435	62	1	. . . .	2	42	812	34,104	521	22,822	301	12,642
. .	. .	. .	. . .	. . .	. .	. .	. .	. .	. . . .	. .	86	332	28,552	304	36,144	287	24,682
. .	. .	. .	. . .	. . .	. .	. .	. .	. .	. .	. . .	65	411	26,715	420	27,420	465	30,285
2	40	2	74	35	25	134	16	. .	7,340		90	395	35,550	385	34,650	390	35,100
. .	. .	.	53	32	24	109	15	. .	5,261	:	130	395	51,350	400	52,000	393	50,700
1	20	1	125	70	30	225	19	. .	10,248		90	395	35,550	400	36,000	390	35,100

A STATEMENT *of the Names, Power, Capacity, and Ventilation in the respective*

NAME OF COLLIERY.	VENTILATION.									
	4TH WEEK.			1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.	
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Average air current per month at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current per minute at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.
Barclay,				200	9,600	120	5,760	200	9,600	210	10,080
Barclay,				200	8,000	110	4,000	120	4,800	100	4,000
Barclay,	220	15,840	250	220	8,800	270	10,800	220	8,800	200	8,000
Barclay,	220	14,960	217	250	10,000	200	8,000	270	10,800	250	10,000
Carbon Run,				29	10,067	59	796	69	931	79	10,066
Carbon Run,											
Carbon Run,											
Carbon Run,											
Porter,											
Bennington Shaft,	199	27,800	178	133	6,400	142	6,800	146	7,000	152	7,700
Rolling-Mill Mine,	95	8,550	92	92	4,600	93	4,650	96	4,800	92	4,600
Gautier Coal Mine,	70	2,459	68	44	1,760	40	1,760	42	1,680	45	1,800
Conemaugh Fur. Mine,	95	3,420	94	44	1,760	45	1,800	45	1,800	43	1,720
Woodvale Mine,	1 5	4,025	1 4	64	2,560	62	2,480	65	2,600	64	2,560
Sonman,	206	10,410	192								
Lloydsville Mine,	350	12,500	315	180	6,300	210	7,350	320	11,200	250	8,750
Ben's Creek Mine,											
Mount Hope,	195	10,164	177	155	3,875	150	3,750	165	4,125	155	3,875
Snow Shoe,	418	13,803	401	395	11,325	389	11,676	378	11,340	408	12,258
Snow Shoe,	340	16,653	382	311	13,980	331	14,230	340	14,650	350	15,067
Sterling, No. 1,	220	22,000	195	100	5,400	120	7,200	110	5,800	130	7,020
Sterling, No. 1,	250	15,000	222	140	6,720	120	6,840	150	8,550	110	6,270
Sterling, No. 2,	230	10,350	252	80	4,800	80	4,800	110	6,600	130	7,800
Penn,	90	4,320	80	50	2,750	50	2,851	65	3,360	63	3,300
Moshannon,	270	15,026	278	280	14,000	280	14,000	250	12,500	275	13,750
Beaver Run,	229	9,900	222	200	8,400	210	8,820	200	8,400	200	8,400
Kittanning,	720	30,240	628	330	13,200	350	14,000	400	16,000	370	14,850
Eureka,	185	13,051	173	200	5,616	190	5,383	185	5,266	185	5,266
Goss Run,	195	12,832	196	260	12,850	250	12,430	260	12,856	250	12,430
Mapleton,	140	7,350	130	210	11,592	190	10,908	200	11,232	220	11,916
Webster,	300	13,800	280	170	6,800	190	7,600	200	8,000	180	7,200
Webster,	240	10,800	250	210	8,820	200	8,400	220	9,240	210	8,820
Excelsior,	250	16,000	251	210	15,120	210	15,280	215	15,480	210	15,220
Morrisdale,	90	6,604	120								
Glenwood,	200	7,000	193	120	3,120	135	3,510	130	3,480	130	3,510
Laurel Run,	300	11,356	250	150	8,832	60	4,512	150	8,832	200	11,232
Decatur,	100	4,824	86	100	4,288	75	3,488	70	3,328	100	4,288
Daguscahonda,	390	9 075	388	460	8,300	460	8,325	460	8,300	450	8,325
Daguscahonda,	470	9,825	475	330	4,950	335	5,025	325	4,875	330	4,950
Mooredale,	210	8,820	196	160	5,376	170	5,712	180	6,048	185	6,216
McIntyre,	195	6,874	197	135	5,128	145	5,419	130	4 983	137	5,186
McIntyre,	200	11,232	207	174	6,263	165	6,000	155	5,710	163	5,943
McIntyre,	148	14,417	151	360	13,734	364	14,452	378	14,199	366	13,920
Buttsville,	213	7,740	210								
Clermont,				207	8,280	200	8,000			250	10,000
Clermont,				297	10,638	206	11,124				
Antrim,											
Antrim,	480	15,840	436	290	7,250	280	7,000	280	7,000	300	7,500
Fall Brook,	255	7,650	257	210	5,040	200	4,800	215	5,160	215	4,920
Fall Brook,	265	9,275	253	215	5,590	225	5,850	210	5,460	220	5,720
Arnot,	644	26,048	569	447	14,304	358	11,456	256	8,792	340	10,880
Arnot,	3 3	28,638	316	2-6	12,012	268	11,256	276	11,592	304	12,768
Arnot,	447	29,055	435	519	12,500	501	12,004	626	15,024	664	15,931
Morris Run,	395	35,550	391	140	7,000	140	7,000	145	7,250	150	7,500
Morris Run,	395	5',250	395	149	5,600	135	5,400	150	6,000	145	5,800
Morris Run,	409	36,000	396	160	6,400	165	6,600	150	6,000	160	6,400

Collieries in the Third Bituminous Mine District of Pennsylvania.—Continued.

Average velocity per minute for the month.	Outlet—size of—feet.	VENTILATION. 1ST WEEK. Velocity of air current per minute at outlet.	1ST WEEK. Number of cubic feet per minute passing out.	2D WEEK. Velocity of air current per minute at outlet.	2D WEEK. Number of cubic feet per minute passing out.	3D WEEK. Velocity of air current per minute at outlet.	3D WEEK. Number of cubic feet per minute passing out.	4TH WEEK. Velocity of air current per minute at outlet.	4TH WEEK. Number of cubic feet per minute passing out.	Average number of feet passing out per month.	LOCATION.
182	64	520	33,280	600	38,400	500	32,000	500	32,000	33,920	Barclay, Bradford county.
130	98	285	27,930	270	26,460	300	29,400	380	37,240	28,907	do. do.
227	81	400	32,400	350	28,000	350	28,000	400	32,000	30,000	do. do.
242	36	410	14,760	370	13,320	400	14,760	390	14,040	14,220	do. do.
965	315	459	14,453	459	14,459	459	14,458	509	16,023	14,832	Carbon Run, Bradford co.
. . .	50	209	10,450	199	9,955	209	10,450	199	9,959	10,200	do. do.
. . .	91	359	32,669	419	38,129	289	21,209	309	28,119	31,304	do. do.
. . .	30	289	8,670	259	7,770	309	9,927	299	8,970	8,670	do. do.
.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	Porterville, Blair county.
163	352	58	20,600	55	19,200	61	22,500	68	23,800	21,550	Bennington, do.
93	38	360	13,680	362	13,756	365	13,770	365	13,770	13,744	Johnstown, Cambria county.
42	30	100	3,000	98	2,940	105	3,150	100	3,000	3,022	do. do.
44	31	113	3,503	115	3,565	114	3,534	115	3,565	3,541	do. do.
63	30	136	4,080	135	4,050	130	4,000	135	4,050	4,020	do. do.
. . .	28	280	8,001	275	8,052	250	10,002	360	10,802	9,640	Benn's Creek, do.
240	36	310	10,850	400	14,000	340	11,900	400	14,000	12,687	Lloydsville, do.
. . .	.	.	.	.	.	.	.	.	.	.	Benn's Creek, do.
156	25	225	9,450	240	10,080	235	9,870	220	9,180	9,895	Cameron, Cameron county.
402	34	408	13,892	424	14,426	428	14,552	428	14,552	14,855	Snow Shoe, Centre county.
332	41	350	13,597	340	14,968	350	14,386	390	14,761	14,417	do. do.
115	78	250	19,500	200	15,600	200	15,600	220	17,160	16,965	Sterling, Clearfield county.
130	60	270	16,200	250	15,000	210	12,600	285	17,100	16,225	do. do.
100	80	200	16,000	220	17,600	170	13,400	190	15,200	15,550	do. do.
62	15	600	9,000	600	9,000	630	9,450	633	9,750	9,210	Houtzdale, do.
269	44	320	14,080	310	13,640	290	12,760	300	13,200	13,220	Sobieski, do.
205	25	350	11,400	340	11,360	340	11,360	340	11,360	11,370	Beaver Run, do.
362	66	420	27,720	400	28,400	450	27,900	500	33,000	29,161	Houtzdale, do.
291	26	320	9,100	300	8,608	310	8,858	310	8,855	8,858	do. do.
255	36	350	13,562	355	13,836	360	14,061	355	13,836	13,838	Goss Run, do.
205	.	220	11,998	210	11,664	220	12,144	230	12,834	12,081	Mapleton, do.
185	27	680	18,360	660	17,820	700	18,900	700	19,170	18,562	Goss Run, do.
215	30	500	16,500	530	15,900	560	16,800	580	17,400	16,650	do. do.
211	36	600	21,600	610	21,960	670	23,000	600	21,600	21,843	do. do.
	20	140	3,186	150	3,106	100	2,466	110	2,646	2,906	Morrisdale, do.
130	. .	340	20,400	350	21,000	320	19,200	330	19,800	20,100	Glenwood, do.
140	28	225	7,252	160	5,432	200	6,562	290	9,072	7,077	Laurel Run, do.
86	35	200	5,859	85	2,975	150	4,600	100	3,350	4,968	Decatur, do.
462	30	475	14,250	470	14,100	475	14,250	470	14,100	14,170	Daguscahonda, Elk county.
330	20	340	6,800	345	6,900	340	6,800	335	6,700	6,800	do. do.
173	30	290	6,600	210	6,300	205	6,150	220	6,600	6,420	Mooredale, Huntingdon co.
136	20	190	9,420	.	.	.	.	.	.	.	McIntyre, Lycoming county.
164	23	260	14,025	280	1,498	286	15,236	292	15,575	14,921	do. do.
368	42	240	15,276	245	15,538	255	16,091	243	15,439	15,586	do. do.
. .	36	287	10,332	292	10,512	301	10,836	283	10,188	10,301	Buttsville, McKean county.
280	40	240	9,600	238	9,560	. .	. .	225	9,000	9,389	Clermont, do.
278	32	228	7,296	215	6,880	. .	. .	208	6,656	6,944	do. do.
. .	35	765	26,775	760	26,600	780	27,300	775	27,125	26,950	Antrim, Tioga county.
287	27	480	12,960	490	13,230	495	13,365	483	13,041	13,194	do. do.
207	30	270	8,100	280	8,400	265	7,950	285	8,550	8,250	Fall Brook, do.
217	60	320	19,200	305	18,300	300	18,000	315	18,900	18,600	do. do.
350	72	391	28,152	201	14,472	304	21,888	382	27,504	23,003	Arnot, do.
283	40	698	27,920	580	23,200	626	25,040	691	27,640	25,950	do. do.
577	70	377	26,390	375	26,260	447	31,290	429	30,030	28,490	do. do.
144	72	800	57,600	790	56,880	800	57,600	810	53,200	57,680	Morris Run, do.
145	66	800	52,800	810	53,460	790	52,140	800	52,800	52,860	do. do.
159	52	805	41,860	810	42,120	800	41,600	815	42,380	41,534	do. do.

A STATEMENT *of the Names, Power, Capacity, and Ventilation in the* *vania, for the Month*

NAME OF COLLIERY.	NAME OF OPERATOR.	Character of coal—bituminous or semi-bituminous.	Slope.	Drift.	Shaft.	Fan.	Furnace.	Number of headings.	Pumps—how many.
Barclay,	Towanda Coal Company,	Semi-bitum.		1			1	3	2
Barclay,	do. do.	do.		1			1	3	
Barclay,	do. do.	do.		1			1	7	
Barclay,	do. do.	do.		1			1	2	
Porter,	Denistou, Porter & Co.,	do.			1			3	
Bennington Shaft,	Blair Iron and Coal Company,	do.			1	1		8	2
Rolling-Mill Mine,	Cambria Iron Company,	do.		1		1		8	
Gautier Mine,	do. do.	do.		1			1	2	
Conemaugh Mine,	do. do.	do.		1			1	2	
Woodvale Miue,	do. do.	do.		1			1	2	
South Fork Coal Mine,	South Fork Coal Work Company	Bituminous,		1				2	
Lloydsville Mine,	Bell's Gap Railroad Company,	Semi-bitum,		1		1		2	
Sonman,	W. H. Piper & Co.,	do.		1			1	2	
Benn's Creek,	S. H. Smith,	do.		1				2	
Snow Shoe,	Bellefonte & Snow Shoe R. R. Co	Bituminous,		1			1	3	
Snow Shoe,	do. do.	do.		1			1	4	2
Mount Hope,	Mount Hope Coal Company,	do.		1			1	1	
Sterling, No. 1,	Robert Hare Powell & Co.,	Semi-bitum.		1			1	11	
Sterling, No. 1,	do.	do.		1			1	9	
Sterling, No. 2.	do.	do.		1				10	
Franklin,	Kittanning Coal Company,	Bituminous,		1			1		
Penn,	Reakirt Brother & Co.,	do.		1			1	2	
Eureka,	Berwind, White & Co.,	Semi-bitum.		1			1		
Goss Run,	do. do.	do.		1			1		
Mapleton,	do. do.	do.		1			1		
Excelsior,	Fisher Brother & Miller,	Bituminous,		1			1	12	
Webster,	J. C. Scott & Sons,	Semi-bitum.		1			1	9	
Webster,	do.	do.		1			1		
Laurel Run,	Nuttall, Bacon & Co.	do.		1			1	6	
Decatur,	Decatur Coal Company,	Bituminous,		1			1	4	
Glenwood,	Coulter & Huff,	do.		1			1	5	
Rochester,	Bell, Lewis & Yates,	do.		1			1	8	
St. Mary's,	St. Mary's Coal Co.,	do.		1			1	1	
Carbon,	Bears Brothers,	Semi-bituu.		1				5	
Mooredale,	Reakirt Brother & Co.,	do.		1				3	
McIntyre,	McIntyre Coal Company,	do.		1			1	10	
McIutyre,	do. do.	do.		1			1	9	
McIntyre,	do. do.	do.		1			1	8	
Buttsville Mine,	J. E. Butts, junior,	Bituminous,		1					
Antrim,	Fall Brook Coal Company,	Semi-bitum.		1			1		
Antrim,	do. do.	do.		1			1		
Fall Brook,	do. do.	do.		1			1	5	1
Fall Brook,	do. do.	do.		1			1	21	
Arnot,	Blossburg Coal Company,	do.		1			1		
Arnot,	do. do.	do.		1			1		
Arnot,	do. do.	do.		1			1		
Morris Run,	Morris Run Coal Mining Co.,	do.		1			1	5	
Morris Run,	do. do.	do.		1			1	8	
Morris Run,	do. do.	do.		1			1	13	1

respective Collieries in the Third Bituminous Mine District of Pennsyl-of November, 1879.

Number of engines.	Horse power.	Boilers—how many.	Number of miners—men.	Number of miners—boys.	Other persons.	Total number of persons.	Number of mules inside.	Number of mules outside.	Total production in tons.	VENTILATION.							
												1ST WEEK.		2D WEEK.		3D WEEK.	
										Number of openings.	Inlet—size of—sq. feet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.
2	. .	2	250	61	74	385	60	7	. . . .	2							
. .	. .	. .	. . .	. . .	. . .	. . .	. .	. .	. . .	2	72	470	33,740	400	28,800	450	32,400
. .	. .	. .	. . .	. . .	. . .	. .	. .	. .	.	2	68	315	21,420	230	15,640	220	14,960
1	20	2	48	14	12	74	10	2	3,547	2	40			. .		450	18,000
3	. .	7	115	17	46	178	22	1	8,197	2	140	206	28,800	195	27,327	171	24,000
. .		. .	175	40	50	265	29	. .	14,480	2	64	719	46,016	718	45,952	718	46,016
. .	. .	. .	19	4	3	26	2	. .	1,390	2	36	95	3,420	90	3,240	95	3,420
. .	. .	. .	16	6	4	26	2	2	1,750	2	36	95	3,420	90	3,240	95	3,420
. .	. .	. .	26	3	4	33	2	1	1,600	2	35	112	3,920	115	4,025	113	3,955
. .	. .	. .	26	. .	6	32	3	1	1,200	2							
1	. .	2	85	6	15	106	15			2	36	290	10,150	340	11,900	350	12,250
. .	. .		75	10	10	95	9	3	4,900	2	54	310	20,000	110	11,000	308	21,000
. .	. .	. .	40	3	7	50	2	. .	. . . .	2							
. .	. .	. .	16	5	5	26	4	. .	1,388	2	33	389	12,843	398	13,163	408	13,483
. .	. .	. .	46	12	13	71	8		4,059	2	48	321	15,422	331	15,880	340	16,353
. .	. .	. .	45	7	9	61	6	1	3,500	2	42	200	10,425	190	9,903	201	10,947
1	12	1	239	22	37	298	18	. .	18,574	2	80	240	17,800	210	16,860	270	21,600
. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	2	48	350	16,800	290	13,920	270	12,960
. .	. .	. .	80	5	11	96	6	. .	4,026	2	45	300	13,500	350	15,750	290	13,050
1	. .	1	137	13	52	202	20	. .	6,882	2	42	580	24,360	575	24,150	740	31,080
. .	. .	. .	40	5	5	50	5	2	2,000	2	40	100	4,000	103	4,120	120	4,800
. .	. .	. .	56	6	12	74	7	. .	3,337	2	60	160	11,614	170	12,191	185	13,051
. .	. .	. .	93	20	16	129	12	.	6,322	2	56	195	12,832	200	13,104	200	13,104
. .	. .	. .	40	3	11	54	5	2		2	42	140	7,350	130	6,972	200	6,990
. .	. .	. .	140	12	15	167	11	8	13,000	2	64	340	21,760	345	22,080	342	21,600
. .	. .	. .	150	25	6	181	8	4	5,000	2	45	230	10,656	250	11,580	275	12,749
. .	. .	. .	. . .	. .			. . .	. .	. . .	2	46	170	7,650	200	9,000	225	11,125
. .	. .	. .	42	16	6	64	4	2	3,190	2	34	280	10,676	250	9,650	200	7,956
. .	. .	. .	34	14	4	52	3	. .	2,485	2	36	130	5,904	90	4,464	140	6,264
.	. .	. .	48	2	9	59	3	1	5,000	2	35	175	6,125	190	6,650	210	7,350
. .	. .	.	217	12	34	263	13	1	15,680	2	63	430	27,090	420	26,460	460	28,980
. .	. .	. .	75	20	8	103	2	. .	6,400	2	54	204	12,798	203	12,744	206	12,906
. .	. .	. .	36	8	6	50	3	1	1,745	2	44						
. .	. .	.	30	3	3	36	2	. .	1,291	2	42	200	8,400	210	8,820	190	7,980
1	. .	1	30	2	12	44	4	1	18,065	2	30	200	7,020	210	7,311	170	6,147
. .	. .	. .	90	6	27	123	16	3	. . . .	. . .	48	210	11,697	215	11,330	220	12,163
. .	. .	. .	132	7	14	153	7	. .	.	. . .	78	165	15,600	160	15,225	155	14,847
. .	. .	. .	43	7	23	73	10	2	2,473	2	36	195	7,020	201	7,236	197	7,092
. .	. .	. .	315	30	125	470	30	. .	19,143	2							
. .	. .	. .	50	18	18	86	12	. .	5,401	2	30	245	7,350	260	7,800	265	7,950
. .	. .	. .	53	18	18	89	11		7,130	2	35	265	9,275	255	8,925	260	9,100
. .	. .	. .	267	108	78	453	62	1	. . .	2	72	333	23,832	449	32,328	336	26,352
. .	. .	. .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	2	86	268	23,040	270	23,220	541	41,526
. .	. .	. .	.	.	.	. . .	. . .	. . .	.	2	65	411	26,715	420	27,300	519	33,735
2	40	2	74	35	25	134	16	. .	8,764	2	90	390	35,100	385	34,650	395	35,550
. .	. .	. .	53	32	24	109	15	. .	6,017	2	130	385	51,350	390	50,700	385	50,050
1	20	1	125	70	30	225	19	. .	12,164	2	90	390	35,100	400	36,000	380	34,200

A STATEMENT *of the Names, Power, Capacity, and Ventilation in the respective*

NAME OF COLLIERY.	VENTILATION.									
	4TH WEEK.			1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.	
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Average air current per month at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current per minute at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.
Barclay,	. . .	. . . .	. .	230	11,040	300	14,400	220	10,560	270	8,600
Barclay,	. . .	. . . .	. .	200	8,000	150	6,000	250	10,000	250	10,000
Barclay,	440	31,680	440	250	10,000	300	12,000	370	14,800	310	12,400
Barclay,	220	14,960	246	250	10,000	180	7,200	200	8,000	250	10,000
Porter,	490	18,900	460	. .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .
Bennington Shaft,	187	26,180	190	151	7,256	146	7,000	148	7,110	148	7,120
Rolling-Mill Mine,	719	45,952	719	400	20,000	380	19,000	390	19,500	400	20,000
Gautier Mine,	98	3,528	92	40	1,160	46	1,840	48	17,020	50	2,000
Conemaugh Mine,	98	3,528	94	40	1,320	46	1,507	48	1,584	50	1,650
Woodvale Mine,	116	4,060	114	60	2,400	64	2,560	63	2,520	65	2,600
South Fork Coal Mine,	. . .	. . . .	. .	. . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .
Lloydsville Mine,	300	10,500	260	260	9,100	270	9,450	300	10,500	250	8,750
Sonman,	120	12,360	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Benn's Creek,	. . .	. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Show Shoe,	418	13,809	409	379	11,385	390	11,676	398	11,967	417	12,528
Snow Shoe,	351	16,867	346	331	14,233	340	14,650	350	15,067	360	15,484
Mount Hope,	195	10,164	199	155	3,875	150	3,750	165	4,125	155	3,875
Sterling, No. 1,	240	19,200	235	140	8,400	170	10,200	150	8,400	110	6,600
Sterling, No. 1,	370	17,760	320	80	3,200	170	6,800	130	5,200	150	6,000
Sterling, No. 2,	320	14,400	315	200	8,000	170	6,800	150	6,000	200	8,000
Franklin,	595	24,990	622	310	12,400	340	13,600	390	15,600	370	14,800
Penn,	125	5,000	113	50	2,000	51	2,040	50	2,000	45	1,800
Eureka,	180	12 768	170	190	5,383	200	5,616	185	5,236	185	5,266
Goss Run,	195	12,832	180	260	12,856	260	12,856	250	12,430	260	12,866
Mapleton,	130	6,972	135	230	12,312	200	11,268	200	11,232	220	11,916
Excelsior,	340	21,760	341	210	15,120	212	15,234	211	15,192	210	15,120
Webster,	280	12,880	261	150	6,975	160	7,440	200	9,300	130	6,025
Webster,	180	8,100	176	217	8,640	200	8,000	210	8,400	225	9,000
Laurel Run,	220	8,633	275	140	6,234	135	6,084	130	5,904	120	5,444
Decatur,	100	4,824	115	100	4,288	75	3,488	150	5,888	140	5,568
Glenwood,	200	7,000	193	120	3,120	135	3,510	130	3,480	130	3,500
Rochester,	530	33,390	460	290	11,600	300	12,000	310	12,300	300	12,000
St. Mary's,	204	12,798	204	206	11,472	205	11,424	206	11,472	203	11,328
Carbon,	. . .	. . . .	. . .	. .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Mooredale,	170	7,140	192	160	5,376	175	5,580	145	4,872	140	4,704
McIntyre,	207	7,223	196	142	5,302	145	5,419	130	4,983	150	5,650
McIntyre,	216	11,976	215	170	6,147	160	5,862	180	6,448	148	5,506
McIntyre,	163	15,452	160	190	7,177	190	7,177	185	7,022	209	7,798
Buttsville Mine,	204	7,344	199	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Antrim,	. . .	. . . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Antrim,	. .	. . . .	. . .	280	7,000	290	7,250	280	7,000	282	7,050
Fall Brook,	255	7,650	256	205	4,920	215	5,160	210	5,040	220	5,280
Fall Brook,	255	8,925	253	210	5,460	200	5,200	215	5,990	210	5,460
Arnot,	313	22,536	365	250	8,000	238	8,576	232	7,424	242	7,744
Arnot,	329	28,294	362	250	10,500	260	10,920	290	12,180	272	11,444
Arnot,	473	31,045	455	572	13,720	580	13,920	638	15,264	572	13,728
Morris Run,	395	3.550	391	135	6,750	130	6,500	140	7,000	145	7,250
Morris Run,	395	51,350	391	135	5,400	135	5,400	130	5,200	145	5,600
Morris Run,	395	3,550	391	155	6,200	165	6,600	150	6,000	155	6,200

Collieries in the Third Bituminous Mine District of Pennsylvania—Continued.

VENTILATION.											
		1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.			
Average velocity per minute for the month.	Outlet—size of - feet.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Average number of feet passing out per month.	LOCATION.
237	64	470	30,080	750	48,000	580	37,120	500	32,000	34,300	Barclay, Bradford county.
212	98	370	36,260	330	32,340	420	41,160	470	46,060	28,955	do. do.
307	80	400	32,000	400	32,000	450	36,000	400	32,000	33,000	do. do.
220	36	420	15,720	440	15,840	470	16,920	400	14,400	15,575	do. do.
. .	44	. . .	. . . .	.	. . . .	. . .	. . . .	. . .	. . . .	. . .	Porterville, Blair county.
148	352	78	22,996	74	21,980	72	21,684	68	20,692	20,682	Bennington, do.
394	70	614	42,980	615	43,050	614	4.298	615	43,050	43,150	Johnstown, Cambria county.
46	31	112	3,472	116	3,996	150	3,565	116	3,900	3,557	do. do.
46	31	112	3,472	116	3,596	115	3,565	116	3,596	3,557	do. do.
63	30	135	4,050	130	3,900	136	4,080	136	4,080	4,027	do. do.
. . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	South Fork, do.
270	36	340	11,900	360	12,600	380	13,300	360	12,600	12,600	Lloydsville, do.
. . .	30	300	18,680	390	19,240	320	18,206	324	18,482	18,401	Benn's Creek, do.
. . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	do. do.
412	34	408	13,892	418	14,222	428	14,552	437	14,861	14,887	Snow Shoe, Centre county.
346	41	340	13,968	350	14,360	360	14,764	369	15,761	14,815	do. do.
156	42	225	9,450	249	10,080	235	9,870	220	9,180	9,835	Cameron, Cameron county.
142	84	190	15,865	220	18,370	200	16,700	220	18,370	17,326	Sterling, Clearfield county.
132	50	200	10,000	280	14,000	300	16,500	230	11,500	13,000	do. do.
180	53	200	10,500	270	14,700	210	11,025	290	15,225	12,731	do. do.
352	66	480	31,680	420	27,720	500	33,000	410	27,060	29,865	Houtzdale, do.
48	15	700	10,500	650	9,750	700	10,500	740	11,100	10,680	do. do.
197	26	300	8,608	320	9,110	310	8,858	300	8,608	8,760	do. do.
257	36	360	14,011	355	13,836	355	13,836	355	13,830	13,940	Goss Run, do.
210	48	240	13,056	210	11,661	210	11,664	220	12,144	12,132	Mapleton, do.
210	36	660	23,760	650	23,400	660	23,760	650	23,400	23,330	Goss Run. do.
236	30	650	1,750	700	18,900	730	26,710	750	20,250	24,860	do. do.
218	. .	550	6,500	600	18,000	520	15,600	450	13,500	17,290	do. do.
262	48	190	12,986	180	10,272	180	10,272	200	11,230	10,752	Laurel Run, do.
116	25	100	3,350	75	2,725	150	4,600	160	6,208	4,220	Decatur, do.
130	60	340	20,400	350	21,000	320	19,200	330	19,830	20,100	Glenwood, do.
300	56	500	29,120	540	30,240	550	38,000	560	31,360	36,490	Du Bois. do.
205	54	204	11,960	203	12,744	203	12,090	210	13,122	12,892	St. Mary's, Elk county.
. . .	. . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	Broad Top, Huntingdon co.
155	30	220	6,600	230	6,900	210	6,300	295	6,150	6,487	Mooredale, do.
141	. .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	.	McIntyre, Lycoming county.
164	23	314	16,549	290	15,792	309	16,353	337	17,610	16,576	do. do.
193	42	265	16,632	260	16,363	256	16,145	250	15,820	16,240	do. do.
. . .	36	285	10,260	293	10,548	287	10,332	289	10,404	10,398	Buttsville, McKean county.
. . .	35	750	26,250	760	26,600	765	26,765	775	27,475	26,687	Antrim, Tioga county.
283	37	480	12,960	495	13,365	490	13,230	483	13,041	13,074	do. do.
210	30	270	8,100	275	8,250	285	8,550	265	7,950	8,212	Fall Brook, do.
208	60	290	17,400	280	16,800	305	18,300	295	17,700	17,550	do. do.
248	42	771	35,972	823	38,566	805	36,810	676	28,392	37,710	Arnot, do.
270	40	572	22,880	585	23,400	491	47,640	768	30,720	31,160	do. do.
590	70	395	27,660	400	28,000	483	33,810	438	30,660	30,030	do. do.
138	72	780	56,160	775	55,800	800	57,600	805	57,960	56,670	Morris Run, do.
135	66	800	52,800	790	52,140	795	52,470	800	52,800	52,560	do. do.
156	52	800	41,600	810	42,120	790	41,800	805	41,860	41,801	do. do.

A STATEMENT *of the Names, Power, Capacity, and Ventilation in the vania, for the Month*

NAME OF COLLIERY.	NAME OF OPERATOR.	Character of coal—bituminous or semi-bituminous.	Slope.	Drift.	Shaft.	Fan.	Furnace.	Number of headings.	Pumps—how many.
Barclay,	Towanda Coal Company,	Semi-bitum.		1			1	3	2
Barclay,	do. do.	do.		1			1	3	
Barclay,	do. do.	do.		1			1	8	
Barclay,	do. do.	do.		1			1	2	
Carbon Run,	Schraeder Coal Company,	do.		1			1		
Carbon Run,	do. do.	do.		1			1		
Carbon Run,	do. do.	do.		1			1		
Porter,	Denniston, Porter & Co.,	do.			1			3	
Bennington Shaft,	Blair Iron and Coal Company,	do.			1	1		7	2
Rolling-Mill Mine,	Cambria Iron Company,	do.		1		1		5	
Gautier Mine,	do. do.	do.		1			1	2	
Conemaugh,	do. do.	do.		1			1	2	
Woodvale,	Johnstown Manufacturing Co.,	do.		1			1	2	
Benn's Creek,	S. H. Smith.	do.		1				4	
Lloydsville,	Bell's Gap Railroad Company,	do.		1		1			
Argyle,	Argyle Coal Company,	Bituminous,		1				1	
Mount Hope,	Mount Hope Coal Company,	do.		1			1		
Moshannon,	Moshannon Coal Company,	do.		1			1	1	
Sterling, No. 1,	Robert Hare Powell & Co.,	Semi-bitum.		1			1	7	
Sterling, No. 1,	do. do.	do.		1			1	9	
Sterling, No. 2,	do. do.	do.		1				7	
Franklin,	Kittanning Coal Company,	Bituminous,		1			1	14	
Penn,	Reakirt Bros. & Co.,	do.		1			1	2	
Beaver Run,	J. E. Leskie & Co.,	do.		1			1		
Eureka,	Berwind, White & Co.,	do.		1			1	5	
Goss Run,	do. do.	do.		1			1		
Mapleton,	do. do.	Semi-bitum.		1			1		
Excelsior,	Fisher Bros. & Miller,	Bituminous,		1			1	10	
Ocean,	Whitehead & Co.,	do.		1			1		
Glenwood,	Coulter & Huff,	do.		1			1	5	
Laurel Run,	Nuttall, Bacon & Co.,	do.		1			1	6	
Decatur,	Decatur Coal Company,	do.		1			1	4	
Sandy Lick,	Sandy Lick Coal Company,	do.		1			1		1
Rochester,	Bell, Lewis & Yates,	do.		1			1	9	
St. Mary's,	St. Mary's Coal Company,	do.		1			1	2	
Daguscahonda,	N. W. Mining and Exchange Co.	do.		1			1	4	
Daguscahonda,	do. do.	do.		1			1		
Mooredale,	Reakirt Bros. & Co.,	Semi-bitum.		1			1	3	
McIntyre,	McIntyre Coal Company,	do.		1			1	10	
McIntyre,	do. do.	do.		1			1	9	
McIntyre,	do. do.	do.		1			1	8	
Buttsville Mine,	J. E. Butts, junior, agent,	Bituminous,		1					
Antrim,	Fall Brook Coal Company,	Semi-bitum.		1			1		
Antrim,	do. do.	do.		1			1		
Fall Brook,	do. do.	do.		1			1	7	1
Fall Brook,	do. do.	do.		1			1	20	
Arnot,	Blossburg Coal Company,	do.		1			1		
Arnot,	do. do.	do.		1			1		
Arnot,	do. do.	do.		1			1		
Morris Run,	Morris Run Coal Mining Co.,	do.		1			1	5	
Morris Run,	do. do.	do.		1			1	8	
Morris Run,	do. do.	do.		1			1	13	1

respective Collieries in the Third Bituminous Mine District of Pennsyl-
of December, 1879.

Number of engines.	Horse power.	Boilers—how many.	Number of miners—men.	Number of miners—boys.	Other persons.	Total number of persons.	Number of mules inside.	Number of mules outside.	Total production in tons.	VENTILATION.							
												1ST WEEK.		2D WEEK.		3D WEEK.	
										Number of openings.	Inlet—size of—sq. feet	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.
2	. .	2	250	62	75	378	56	7	. . . .	2							
. .	. .	. .	. . .	. . .	. . .	. . .	. . .	.	. . .	2							
. .	. .	. .	. . .	. . .	. . .	. . .	. .	. .	. . . .	2	72	450	31,400	600	43,200	430	30,760
. .	. .	. .	. . .	. . .	. . .	. . .	. . .	. .	. . . .	2	68	165	13,260	165	13,260	109	12,240
. .	. .	. .	131	25	35	191	22	7	16,000	2							
1	15	2	50	18	20	88	12	2	4,759	2	40	400	16,000	375	15,000	425	17,220
3	. .	7	125	20	47	192	27	1	. .	2	140	165	23,140	145	20,364	172	24,089
.	. .	.	160	53	86	299	29	. .	14,684	2	64	718	45,952	719	46,670	718	45,952
. .	. .	. .	19	7	5	31	2	. .	1,498	2	35	64	2,240	70	2,450	78	2,730
. .	. .	. .	16	5	2	23	2	1	1,153	2	36	90	3,240	95	3,420	95	3,420
. .	. .	. .	24	4	3	31	2	1	1,500	2	35	113	3,955	115	4,481	116	4,294
. .	. .	. .	40	4	7	51	3	2	3,837	2							
. .	. .	. .	75	6	12	93	15	5	.	2	36	350	12,250	400	14,000	300	10,500
. .	. .	. .	18	2	5	25	2	. .	1,000	2							
. .	. .	. .	40	6	8	54	5	1	3,000	2	36	200	10,425	190	9,903	210	10,947
. .	. .	. .	84	11	5	100	5	1	6,317	2	56	270	15,120	265	14,840	285	18,525
1	12	1	220	35	31	286	14		19,847	2	80	210	16,800	210	16,800	240	19,200
. .	. .	. .	. . .	. . .	. . .	. . .	. . .	. .	.	2	56	320	17,920	300	16,800	370	20,720
. .	. .	.	82	5	8	95	6	. .	6,383	2	77	210	16,170	180	13,860	170	13,090
1	. .	1	121	19	41	181	22	.	10,994	2	42	610	25,620	675	28,350	650	27,300
. .	. .	. .	50	13	7	70	5	2	3,563	2	48	100	4,800	120	5,760	110	5,800
. .	. .	. .	60	8	11	79	4	1	5,300	2	43	250	11,250	260	11,700	260	11,700
. .	. .	. .	55	6	9	70	7	. .	4,828	2	60	170	12,191	175	12,400	160	11,614
. .	. .	. .	105	22	13	140	12	.	10,404	2	56	210	13,647	200	13,104	205	13,375
. .	. .	. .	62	5	12	79	6	3	. .	2	42	140	17,350	140	17,350	130	16,972
. .	. .	. .	160	11	16	187	10	8	14,000	2	64	300	19,600	320	20,080	322	20,688
. .	. .	. .	300	20	28	348	30	. .	19,500	2	63	514	32,382	529	33,327	525	33,075
. .	. .	. .	50	4	6	60	3	1	5,000	2	35	175	6,125	190	6,650	210	7,350
. .	.	.	42	16	6	64	4	3	4,848	2	34	320	12,300	350	13,056	310	11,696
. .	. .	.	24	14	4	52	3	. .	3,100	2	36	70	3,744	50	3,024	75	3,924
1	. .	1	55	4	7	66	6	3	.	2	42	225	9,450	250	10,500	250	10,500
. .	. .	. .	241	15	44	300	14	1	18,625	2	63	400	25,200	390	24,570	420	26,469
1	90	4	40	10	5	55	1	3	2,000	2	54	202	12,690	204	12,798	202	12,690
. .	. .	. .	24	2	1	27	2	. .	1,047	2	30	220	6,600	230	6,930		
. .	. .	. .	. . .	. . .	. . .	. . .	. .	. .	. . . .	. .	30	200	6,000	300	9,000		
. .	. .	. .	16	3	4	23	2	. .	618	2	42	160	6,720	140	5,880	140	5,880
1	. .	1	31	2	10	43	5	1	16,252	2	30	260	8,772	265	8,851	263	8,853
. .	. .	. .	90	4	27	121	16	3	. . .	2	48	215	11,930	217	12,023	247	13,523
. .	. .	. .	134	5	15	154	9	. .	.	2	78	160	15,225	165	15,603	163	15,452
. .	. .	. .	50	5	24	79	10	2	2,453	2	36	201	7,236	200	7,200	196	7,656
. .	. .	. .	315	30	125	470	30	. .	20,946	2							
. .	. .	. .	50	18	18	86	13	. .	6,200	2	30	250	7,500	260	7,800	255	7,650
. .	. .	. .	52	18	18	88	11	. .	7,623	2	35	260	9,100	265	9,275	255	8,925
. .	. .	. .	296	112	80	488	65	1	. . .	2	72	349	25,128	358	25,776	331	23,832
. .	. .	. .	. . .	. . .	. . .	. . .	. . .	. .	. . . .	2	40	1,049	43,640	902	36,080	996	38,640
. .	. .	. .	. . .	. . .	. . .	. . .	. . .	. .	. . . .	2	65	384	24,960	420	27,300	438	28,470
2	40	2	75	36	25	136	16	. .	10,200	2	90	395	35,550	385	34,650	390	35,100
. .	. .	. .	53	32	25	110	15	. .	7,530	2	180	395	39,960	400	52,000	390	50, 70
1	20	1	125	70	30	225	22	. .	14,818	2	90	395	35,550	400	36,000	390	35,100

A STATEMENT *of the Names, Power, Capacity, and Ventilation in the respective*

NAME OF COLLIERY.	VENTILATION.											
	4TH WEEK.			1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.	
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Average air current per month at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current per minute at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of head'g.
Barclay,				200	9,600	240	11,520	300	14,400	280	13,400
Barclay,				240	9,600	260	10,400	250	10,000	240	9,600
Barclay,	630	45,360	527	300	12,000	350	13,000	410	16,400	400	16,000
Barclay,	210	14,280	165	250	10,000	260	10,400	300	12,000	300	12,000
Carbon Run,											
Carbon Run,											
Carbon Run,											
Porter.	400	16,000	400								
Bennington Shaft,	158	22,174	160	146	7,025	145	6,950	182	8,736	137	6,556
Rolling-Mill Mine,	719	46,670	7.8	390	19,500	400	20,000	380	19,000	400	20,000
Gautier Mine,	70	2,450	70	40	160	45	1,800	48	1,920	45	1,800
Conemaugh,	90	3,240	92	46	1,380	48	1,440	48	1,440	46	1,380
Woodvale,	131	3,990	114	64	2,560	63	2,520	64	2,560	64	2,560
Beun's Creek,											
Lloydsville,	350	12,250	350	300	10,500	300	10,500	220	7,700	280	9,800
Argyle,											
Mount Hope,	195	10,164	199	155	3,875	150	3,750	165	4,125	155	3,875
Moshannon,	275	14,200	273	250	10,500	265	10,600	300	10,200	285	11,400
Sterling, No. 1,	280	22,400	350	120	8,640	180	12,960	160	10,560	190	11,782
Sterling, No. 1,	340	19,040	332	100	6,000	80	4,800	140	9,240	110	6,820
Sterling, No. 2,	300	17 910	197	200	12,000	130	8,400	180	10,800	180	11,200
Franklin,	550	23,100	621	320	12,800	330	13,200	310	12,400	300	12,000
Penn,	125	6,000	123	80	3,200	90	3,600	82	3,280	100	4,001
Beaver Run,	270	12,150	260	200	8,400	210	8,820	210	8,820	220	9 240
Eureka,	185	13,051	178	200	5,616	210	5,849	200	5,616	210	5,849
Goss Run,	200	13,104	209	265	12,537	260	12,896	250	12,430	255	13,212
Mapleton,	130	16,972	135	210	11,592	2 0	11,592	190	10,908	180	10,746
Excelsior,	300	19 600	310	240	17.280	245	17.610	240	17,280	245	17,640
Ocean,	527	33,201	519	175	4,375	171	4,275	178	4,450	173	4,325
Glenwood,	200	7,000	193	120	3,120	135	3.570	130	3,480	135	3,510
Laurel Run,	320	12,030	325	140	6,264	200	8,424	120	5,549	130	5,904
Decatur,				140	5,568	130	5,248	105	4.448	30	2,048
Sandy Lick,	225	9,450	230	225	9,450	250	10,500	250	10,500	225	9,450
Rochester,	400	25,200	402	209	8,090	179	7,600	210	8,400	200	8,000
St. Mary's,	205	12,852	203	205	11,424	203	11,328	205	11,424	203	11,328
Daguscahonda,								290	5,800	300	6,000
Daguscahonda,								335	5,025	340	5,000
Mooredale,	150	6,300	147	120	4,032	110	3,696	130	4,368	120	4,032
McIntyre,	270	8,997	264	137	5,186	160	5,187	155	5,710	137	5,186
McIntyre,	225	12,294	226	145	5,419	143	8,810	163	5,943	155	5,7.0
McIntyre,	168	15,8 0	164	185	7,022	187	7,084	183	7,120	193	7,270
Buttsville Mine,	207	7,452	201								
Antrim,											
Antrim,				280	7,000	282	7.020	290	7,250	282	7,050
Fall Brook,	265	7,950	257	215	5,160	210	5,040	220	5,280	225	5,400
Fall Brook,	265	9,275	261	205	5,330	215	5,590	200	5,200	210	5,460
Arnot,	358	25,176	349	304	8,512	286	8,008	296	8.008	340	9,550
Arnot,	1,064	42.560	1,013	322	13,524	286	12,012	304	12,768	322	13,524
Arnot,	509	33 085	439	531	13,944	590	14,160	599	14,376	617	14,808
Morris Run,	395	35,550	391	140	7,000	130	6,500	140	7,700	145	7,250
Morris Run,	395	51,350	395	135	5,400	140	5,600	130	5,200	140	5,600
Morris Run,	400	36,000	396	160	6,400	170	6,800	155	6,600	160	6,400

Collieries in the Third Bituminous Mine District of Pennsylvania—Continued.

VENTILATION.											
		1ST WEEK.		2D WEEK.		3D WEEK.		4TH WEEK.			
Average velocity per minute per month.	Outlet—size of—sq ft.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Average number of feet passing out per month.	LOCATION.
255	100	320	32,000	560	56,000	580	58,000	690	67,000	53,750	Barclay, Bradford county.
247	98	375	36,750	450	44,100	350	34,300	395	38,710	38,465	do. do.
367	80	420	33,600	550	44,000	450	36,000	600	48,000	40,400	do. do.
277	36	350	12,600	350	12,600	330	11,880	380	13,680	12,690	do. do.
. . .	32	849	26,743	639	20,128	679	21,388	609	19,183	21,860	Carbon Run, do.
. . .	50	209	10,450	159	7,950	169	8,450	179	8,950	8,950	do. do.
. . .	91	339	3,849	429	39,039	309	28,119	299	27,209	31,304	do. do.
. . .	25	700	17,500	650	16,250	825	20,625	700	17,500	18,600	Porterville, Blair county.
152	352	63	22,173	56	19,720	66	23,081	58	20,576	22,681	Bennington, do.
392	70	614	42,980	615	43,050	614	42,980	615	43,050	43,015	Johnstown, Cambria county.
44	30	100	3,000	105	3,100	109	3,300	108	3,240	3,160	do. do.
47	31	115	3,565	116	3,680	116	3,680	115	3,565	3,622	do. do.
63	30	130	3,900	135	4,050	136	4,080	135	4,050	4,000	do. do.
.	.	.	.	.	.	.	.	.	.	.	Benn's Creek, do.
275	36	390	13,650	440	15,400	350	12,250	390	13,650	13,737	Lloydsville, do.
.	.	.	.	.	.	.	.	.	.	.	South Fork, do.
156	36	225	9,450	240	10,080	235	9,870	220	9,180	9,895	Cameron, Cameron county.
272	44	280	12,320	290	12,760	350	15,400	380	16,720	15,001	Sobieski, Clearfield county.
162	53	250	12,375	280	14,980	260	13,910	340	16,665	14,480	Sterling, Clearfield county.
107	60	370	22,200	360	21,600	310	18,600	360	21,600	21,000	do. do.
177	72	230	16,560	160	11,520	200	14,400	180	12,960	13,860	do. do.
315	66	450	29,700	480	31,680	440	29,040	400	26,400	29,090	Houtzdale, do.
97	15	770	10,700	700	10,500	680	10,200	750	10,680	10,920	do. do.
210	20	560	16,800	570	17,700	570	17,100	580	17,400	17,100	do. do.
208	26	295	8,476	310	8,858	300	8,608	320	9,110	8,860	do. do.
256	37	36	14,011	345	13,480	355	13,836	360	14,011	13,726	Goss Run, do.
200	48	220	14,240	230	14,680	210	13,890	200	13,670	13,980	Mapleton, do.
232	36	640	23,040	645	23,220	642	23,112	645	20,040	23,130	Goss Run, do.
175	52	351	18,360	346	17,992	352	18,304	351	18,252	18,164	do. do.
130	60	340	20,400	350	21,000	320	19,200	330	19,800	21,100	Glenwood, do.
147	48	260	14,112	300	16,030	250	13,632	210	11,712	13,872	Laurel Run, do.
106	25	150	4,600	50	2,200	100	3,150	45	1,975	7,956	Decatur, do.
230	. .	225	9,450	250	10,500	250	10,500	225	9,450	10,000	Du Bois, do.
200		500	28,000	480	26,880	509	28,560	500	28,000	27,968	do. do.
204	54	200	12,036	202	12,690	203	12,744	202	12,690	12,498	St. Mary's, Elk county.
. . .	30	. . .	. . . .	. . .	. . . .	400	12,000	420	12,600	. .	Daguscahonda, do.
. .	20	. .	. . . .	. .	. . .	345	6,900	340	6,800	. . .	do. do.
120	30	189	5,400	170	5,100	150	4,500	160	4,800	4,955	Mooredale, Huntingdon co.
147	23	286	15,236	335	17,517	350	18,216	355	18,930	17,474	McIntyre, Lycoming county.
152	23	286	15,236	335	17,517	350	18,216	355	18,930	17,474	do. do.
187	42	245	15,548	250	15,820	248	15,711	253	15,982	15,765	do. do.
. .	36	282	10,152	267	9,612	295	10,620	304	10,944	10,346	Buttsville, McKean county.
. . .	35	765	26,775	750	26,250	760	26,600	600	22,869	25,360	Antrim, Tioga county.
285	27	480	12,960	490	13,230	483	13,041	480	12,960	13,047	do. do.
217	30	270	8,100	280	8,400	275	8,250	255	7,950	8,175	Fall Brook, do.
207	60	290	17,400	280	16,800	305	18,300	310	18,600	17,750	do. do.
304	42	751	31,542	829	34,818	834	35,010	823	34,550	33,685	Arnot, do.
308	86	527	45,342	438	37,668	455	39,100	510	43,086	41,305	do. do.
595	72	358	25,060	393	27,510	401	28,770	490	34,370	28,902	do. do.
139	72	800	57,600	790	56,880	800	57,600	810	58,320	57,680	Morris Run, do.
136	66	800	52.800	810	53,456	790	52,140	800	52.800	53,160	do. do.
161	52	805	41,860	810	42,420	800	41,600	815	42.000	41,920	do. do.

LIST OF ACCIDENTS *occuring in the Mines of the Third Bituminous*

NAME.	Age.	Married or single.	Number of orphans.	Date of accident.	Nature of Accident.
Archie Hunter,	45	Married,	6	Jan. 6,	Killed,
William Cannick,	28	do.		Jan. 30,	Hand bruised,
John Cruthers,		do.		Jan. 30,	Foot bruised,
William Hogencamp,	14	Single,		Jan. 31,	Left arm and body bruised,
Owen Rowland,	31	Married,		Feb. 2,	Body bruised,
Robert Esgar,	37	do.		Feb, 7,	Face cut,
P. McCollan,	30	do.		Feb. 12,	Leg broken,
Charles Fognan,	39	do.		Feb. 26,	Collar bone and rib broken,
Nichol Ferguson,	48	do.		Feb. 27,	Back bruised,
John Myers,	30	do.		March 11,	Collar bone broken,
James Dugden,	45	do.		March 17,	Legs bruised,
Thomas McGiven,	39	Single,		March 17,	Collar bone broken,
Samuel Maddox,				March —,	Leg crushed,
Henry Alsop,	33	Married,	3	April 1,	Killed,
John Furguson,	30	do.		April 7,	Ankle,
Thomas McNally,	19	Single,		April 9,	Killed,
Percival Kemp,	17	do.		April 14,	Hand bruised and thumb cut off,
Adolph Godel,	40	Married,		April 22,	Head bruised,
Benjamin Ellis,	36	do.	6	May 27,	Killed,
P. Burns,	24	Single,		May 29,	Body bruised,
Samuel Green,	24	Married,		May 29,	do.
Robert Chillon,					Collar bone broken,
George Filer,	30	do.		June 1,	Ankle bruised,
Joseph Rozie,	50	do.	2	June 16,	Killed,
Edward James,	16	Single,		June 20,	Leg broken,
Charles Hummel,	30	Married,		June 23,	Collar bone broken,
Thomas Dawson,				July 31,	Killed,
Michael Owens,	52	do.	5	Sept. 1,	do.
Peter Kitline,	50	do.		Sept. 2,	Body bruised,
William Bryan,	14	Single,		Sept. 5,	Killed,
Hophney Edwards,	35	Married,		Sept. 17,	Leg bruised,
John Walker,	14	Single,		Sept. 19,	Thigh bone fractured,
Thomas Harvey,	17	do.		Oct. 1,	Leg broken,
R. Guilfoyle,					Arm cut,
John Taylor,	34	Married,		Oct. 6,	Shoulder bruised,
Patrick Burns,	60	do.		Oct. 10,	Leg broken,
Phineas Bruce,	22	Single,		Oct. 10,	Hand bruised,
Dean McCabe,	16	do.		Oct. 16,	Leg bone fractured,
Augustus Johnson,	20	do.		Oct. 16,	Killed,
Marcus Grant,	16	do.		Nov. 1,	do.
John Sharkey,	45	Married,		Nov. 7,	Burned by powder,
James Meagher,	23	Single,		Nov. 8,	Hand bruised,
Cyrus Null,	24	Married,		Nov. 11,	Killed,
Joseph Traverse,	30	do.		Nov. 15,	Arm broken,
John Haddow,	19	Single,		Nov. 15,	Killed,
Peter Fitzpatrick,	50	Married,	6	Nov. 21,	do.
James Devine,	48	do.	8	Nov. 27,	do.
Isaac Lancy,	38	do.			Body bruised,
John Schell,	19	Single,		Dec. 9,	Collar bone and four ribs broken,
Patrick Murray,	28	Married,	1	Dec. 9,	Killed,
James Murray,	21	Single,		Dec. 9,	do.
Mark Mathews,	52	Married,		Dec. 14,	Hand bruised,
O. L. Peterson,	24	do.		Dec. 14,	Foot crushed,
John Murray,	22	Single,		Dec. 29,	Hip bruised,

Coal District of Pennsylvania, for the year ending December 31, 1879.

Date of investigation.	Cause of Accident.	Name of Colliery.	Location of Colliery.
Jan. 6,	By fall of roof slate,	Barclay,	Bradford county.
	Between mine cars,	Eureka,	Clearfield county.
	Caught between mine cars,	do.	do.
	Run over by a loaded mine car,	McIntyre,	Lycoming county.
	Caught between mine cars,	Excelsior,	Clearfield county.
	Caught between mine car and roof,	Arnot,	Tioga county.
	By fall of coal,	Sandy Lick,	Clearfield county.
	By fall of stone from roof,	Franklin,	do.
	By fall of roof slate,	Arnot,	Tioga county.
	Crushed between mine cars,	Lloydsville,	Cambria county.
	By fall of coal,	Franklin,	Clearfield county.
	do.	Lloydsville,	Cambria county.
	By fall of loose stone,	Clermont,	McKean county.
April 1,	By fall of coal,	Sterling, No. 2,	Clearfield county.
	By fall of stone,	Arnot,	Tioga county.
April 9,	By fall of coal,	Barclay,	Bradford county.
	By fall of slate,	Lloydsville,	Cambria county.
	By fall of coal and slate,	Morris Run,	Tioga county.
May 27,	By fall of roof rock,	Sterling, No. 2,	Clearfield county.
	By fall of roof,	Ocean,	do.
	By fall of roof rock,	do.	do.
	By fall of slate,	Lloydsville,	Cambria county.
	By fall of coal,	Glenwood,	Clearfield county.
June 16,	By fall of roof slate,	Antrim,	Tioga county.
	By fall of coal,	Goss Run,	Clearfield county.
	do.	Robertsdale,	Huntingdon county.
July 31,	do.	Rochester,	Clearfield county.
Sept. 1,	do.	Sterling, No. 1,	do.
	Caught between mine cars,	Rolling-Mill Mine	Cambria county.
Sept. 5,	Fell under mine car,	Robertsdale,	Huntingdon county.
	Caught between mine cars,	do.	do.
	By fall of bone coal.	Eureka,	Clearfield county.
	Caught between mine car and mule,	Buttsville,	McKean county.
	By fall of slate,	Clermont,	do.
	do.	Eureka,	Clearfield county.
	By fall of roof and coal,	Carbon,	Huntingdon county.
	By a mine car,	Goss Run,	Clearfield county.
	do.	Bennington shaft	Blair county.
Oct. 16,	By fall of coal,	Antrim,	Tioga county.
Nov. 1,	do.	Arnot,	do.
	While charging a blast,	Rolling-Mill Mine	Cambria county.
	By fall of slate,	Goss Run,	Clearfield county.
Nov. 15,	By fall of coal,	Glenwood,	do.
	By fall of bone coal,	Goss Run,	do.
Nov. 15,	By fall of coal.	Fall Brook,	Tioga county.
Nov. 22,	By fall of rock in tunnel,	Rolling-Mill Mine	Cambria county.
Nov. 28,	By fall of top coal,	Barclay,	Bradford county.
	By fall of slate,	Excelsior,	Clearfield county.
	By fall of coal,	Franklin,	do.
Dec. 9,	do.	Sterling, No. 2,	do.
Dec. 9,	do.	do.	do.
	Cause not given,	Barclay,	Bradford county.
	Caught by a loaded mine car,	do.	do.
	By a mule while driving in mine,	Arnot,	Tioga county.

INDEX.

A.

Page.

Agricultural implements, ... 290
Arbitration and conciliation :
iron trade in England, ... 124–127
coal trade in England, ... 128–130
anthracite mines, ... 130
bituminous mines, ... 142–150
iron workers, ... 150
coal operators, opinions of, ... 164–167
blast furnace operators, opinions of, ... 167–168
rolling-mill operators, opinions of, ... 168–169
Axes and edge tools, ... 291

B.

Bloomaries, ... 49–60
returns of, ... 52–53
employé's wages, ... 54–55
Cove forge report, ... 56–60
Blast furnaces, production of, ... 61
comparative prices of iron, ... 61–63
tabulated statement of number, ... 64–65
returns of, ... 66–71.
employé's wages, ... 72–75
number of employés, recapitulation, ... 76
employé's earnings, recapitulation, ... 77
Bolts and nuts, ... 293
Boots and shoes, returns of, ... 218–221
employé's wages, ... 219
recapitulation, ... 220–221
Brass foundries, ... 294

C.

Carpet mills in Philadelphia, ... 193
returns of, ... 196

Page.
Carriages and wagons, ... 295
Chain works, ... 297
Circular to county commissioners, ... 9
justice of peace, ... 9–10
Clay ware, ... 318
Coal, anthracite, ... 12–34
production, ... 17
area and contents of anthracite basins, ... 18
returns of, ... 19–22
accidents at the collieries of the Philadelphia and Reading Coal and Iron Company, ... 23
employé's wages, ... 24–31
number of employés, recapitulation, ... 32
employé's earnings, recapitulation, ... 33
return of Meadow Brook and National collieries, . . . 34
bituminous, returns of, ... 35–39
employé's wages, ... 40–45
price of mining at Fort Pitt mines for 1879, ... 46
number of employés, recapitulation, ... 47
employé's earnings, recapitulation, ... 48
Cotton manufacturers, returns of, ... 210–211
employé's wages, &c., ... 212–217
Cutlery, ... 293

E.

EARNINGS, average weekly and yearly, of employés, ... 320–321
Employé's returns, miner's earnings, (anthracite,) 322–323
miner's expenditures, (anthracite,) 324–325
miner's earnings, (bituminous,) 326–329
miner's expenditures, (bituminous,) 330–333
iron and steel worker's earnings, ... 334–337
iron and steel worker's expenditures, ... 338–341
miscellaneous, earnings, ... 342–347
miscellaneous, expenditures, ... 348–352

F.

FILES AND RASPS, ... 313
Fire brick, ... 299
Furniture, ... 298

G.

GLASS MANUFATURERS, returns of, ... 183–189

H.

HOSIERY AND KNIT GOOD MILLS, number of, ... 193

I.

Page.
Industries, blanks issued and returned, ... 10
Iron bridges, roofs, &c., ... 300
Iron foundries and machine shops, returns of, ... 170–173
employés wages, ... 174–179
recapitulation, ... 180–182
Iron ship building, ... 301

L.

Letter to Secretary, chief of Bureau's, ... 1–8
Light locomotives, ... 309
Locks, ... 302
Lumber, returns of, ... 237–259

M.

Mine inspectors report, anthracite, Shamokin district, ... 389–400
bituminous, first district, ... 401–495
statement of the capacity and production in the first district, ... 403–405
remarks on accidents, first district, ... 405–407
remarks on ventilation, first district, ... 407–410
description and character of mines, first district, . . . 410–433
location of collieries in first district, ... 434–439
tabulated statement of the power, capacity, and ventilation in first district, ... 440–487
list of accidents in first district, ... 488–495
bituminous, second district, ... 497–565
communication, ... 497
statement of the capacity and production in the second district, ... 498–499
list of accidents in second district, ... 500
description and character of mines, second district, . . 501–511
location of collieries in second district, . . . 512–513
tabulated statement of the power, capacity, and ventilation in second district, ... 514–565
bituminous, third district, ... 566–655
communication, ... 566–582
beehive coke ovens, ... 568–571
condition of the mines in the third district, 571–582
estimate of mule and locomotive underground haulage in third district, ... 578–579
ventilation by Murphy fan and by furnace in third district, 580–582
examination of mines in third district, ... 582–605
tabulated statement of the power, capacity, and ventilation in third district, ... 606–653
list of accidents in third district, ... 654–655

O.

Page.
OCCUPATIONS, blanks issued and returned, ... 11
Ore mines, (iron,) returns of, ... 79–81

P.

PAPER MANUFACTURERS, ... 302–304
Paper hangings, ... 305
Payment of wages, ... 353–385
Petroleum, ... 277–289
Pittsburgh, its resources and surroundings, ... 82–93
Portable engines, &c., ... 305–306
Printed books and stationery, ... 305

R.

RAILROAD AXLES AND FORGINGS, ... 307
car manufacturers, ... 308
labor, report of, ... 222–236
Rolling-mills, returns of, ... 94–99
employés' wages, ... 100–107
number of employés, recapitulation, ... 108
earnings of employés, recapitulation, ... 109–110

S.

SASH, DOORS, &c., ... 311
Saws, tools, &c., ... 312
Scale, Pittsburgh puddlers', ... 152–157
rollers' and heaters', ... 158
guide and hoop rollers', ... 159
miners', (bituminous,) 147
chart, by J. E. McCrickart, Esquire, ... 150
weavers' and manufacturers', of Philadelphia, ... 197
Schedule of wages of iron workers, (Philadelphia,) 161–164
Schuylkill mining district, ... 135–137
Wyoming region, ... 137–138
Luzerne and Carbon counties, ... 138–139
Silk, returns of, ... 199
Slate, ... 313
Standard price list of Western Iron and Nail Association, from 1864 to 1880, ... 160
Steam-boilers, &c., ... 315
Steel, bessemer, ... 114–116
crucible, &c., ... 117–121
classification of employés, ... 119
Stone and earthenware, ... 317

T.

Page.
TANNERIES, ... 260–273
Textile fabrics, ... 190–217
James Dobson, Esquire, Philadelphia, remarks on, ... 191–193
National Association Woolen Manufacturers, meeting of, . . 190
Number of carpet-mills, ... 193
hosiery and knit goods mills, ... 193
worsted yarn-mills, ... 193
power-mills on, ... 194
proprietors, ... 194
distinct mills, ... 194
Montgomery county, number of mills on, ... 194–195
Tin plate and rolling-mill, ... 111–113
Tobacco, ... 274–276

W.

WOOL IMPORTATIONS, 1860, 1872, 1878, value of, ... 190
Woolen manufactures, returns of, ... 200–205
wages and earnings, recapitulation, ... 206–209
Worsted yarn-mills, number of, ... 193

ERRATA.

Page 51, line 28, instead of "verberatory," read "reverberatory."
Page 147, line 31, instead of "agreed," read "argued."
Page 156, line 14, after the word "fallen," read "to."

7699